TITLE 92 - NEBRASKA DEPARTMENT OF EDUCATION
CHAPTER 92 - REGULATIONS GOVERNING THE MINIMUM EQUIPMENT STANDARDS AND SAFETY INSPECTION CRITERIA FOR PUPIL TRANSPORTATION VEHICLES

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001 General Information

001.01 Statutory Authority. This Chapter is adopted pursuant to Sections 79-318(12) and 79-602 of the Revised Statutes of Nebraska (R.R.S.).

001.02 Scope and Application. This Chapter presents:

001.02A The minimum equipment standards required on all vehicles utilized to transport public and nonpublic school students. The following regulations, when addressing subject matter regulated by the Federal Motor Vehicle Safety Standards, (FMVSS), 49 Code of Federal Regulations (CFR) 571.101 et seq., are identical to or additional requirements beyond what is addressed in the FMVSS. Should conflicts be found or arise between the following regulations and the FMVSS, as to the same aspect of performance of a motor vehicle or motor vehicle equipment, the FMVSS or any other applicable provision of federal law or regulation shall supersede these regulations; and

001.02B The safety inspection criteria required for all vehicles utilized to transport public and non-public school students.

001.03 Related Regulation. An additional regulation promulgated by the Nebraska Department of Education dealing with pupil transportation is Rule 91, Regulations Governing Driver Qualifications and Operational Procedures for Pupil Transportation Vehicles.

001.04 Penalty Provisions. Sections 79-603 and 79-607 of the Revised Statutes of Nebraska (R.R.S.) provide for Misdemeanor criminal penalties for violation of statutory requirements for inspections of pupil transportation vehicles, safety features, or traffic rules or regulations which relate to school bus transportation.

001.05 Effective date and Implementation Date. Regardless of the effective date of this Chapter, the implementation (operative) date will be 180 days after its effective date. Prior to that date, the provisions of 92 NAC 92 effective July 7, 2015 shall remain in effect. School buses and activity buses manufactured on or after this Chapter's implementation date shall meet or exceed the equipment standards in Section 005. See also "Vehicle Purchase and Use" at subsection 003.01. Regulations concerning small vehicle equipment (Section 006), additional required equipment for vehicles used with mobile seating devices (Section 007), and vehicle inspection criteria (Sections 008–011) apply as of the implementation date regardless of the date of manufacture of such vehicles.

002 Definitions.

002.01 Activity Bus means a motor vehicle with motive power, except a trailer, designed or modified by the manufacturer, distributor or dealer for carrying eleven (11) or more passengers, excluding the driver, meeting or exceeding this Chapter (except as provided in to subsection 003.02 of this Chapter) which at any time would be used to carry school children and school personnel exclusively on a school activity trip from a given location to a second location without stopping to load or unload children or control traffic on public highways, provided that such transportation service is sponsored and approved by the local school governing board. This includes Multi-Function School Activity Bus as defined in 49 CFR 571.3 and does not preclude the use of a school bus as an activity bus.

002.02 Activity Trip means the transportation of children, pupils and school personnel to and from a given location to a second or subsequent location or locations without stopping to load or unload the passengers on the public highways for the purpose of transporting the passengers to any activity or event sanctioned, authorized or sponsored by the school district or the local school's governing board.

002.03 Motor Coach Bus means a vehicle not designed primarily for the transportation of school children to and from school and school related activities, but as a commercial motor vehicle as a part of the operation of a common or contract carrier, as those terms are defined in Section 75-302 R.R.S., with a Gross Vehicle Weight of greater than 33,000 lbs., with a semi-monocoque/monocoque unitized body construction and which has high back seats, under-the-floor storage, and is designed to seat at least 32 passengers. For purposes of this Section, monocoque means a design where the skin or shell of the vehicle acts as a single unit with the supporting frame and semi-monocoque means a design where the skin or shell of the vehicle acts, to some extent, as a single unit with the supporting frame. Such buses are also commonly known as "over-the-road coaches."

002.04 Federal Motor Vehicles Safety Standards (FMVSS) means the construction standards developed and enforced by the National Highway Traffic Safety Administration (NHTSA) that apply to all new motor vehicles and items of motor vehicle safety equipment and must conform with 49 CFR Part 571.

002.05 Route means a designated course regularly traveled by a pupil transportation vehicle to pick up students from home or pickup points and take them to school or other locations related to a student's instructional program or to deliver students from school to their homes or designated drop-off points.

002.06 School Bus means a motor vehicle with motive power, except a trailer, designed or modified by the manufacturer, distributor or dealer for carrying eleven (11) or more passengers, excluding the driver, meeting or exceeding the requirements of this Chapter which at any time is used to carry school children and school personnel exclusively that is sponsored and approved by the local school governing board. School bus includes an Activity Bus (as defined in this Chapter) and Multi-Function School Activity Bus (MFSAB) as defined in 49 CFR 571.3 except where otherwise provided in this Chapter (see subsection 003.02). Vehicles that only carry school

children along with other passengers as a part of the operation of a common carrier under the jurisdiction of United States Department of Transportation, Nebraska Public Service Commission, Nebraska State Patrol Carrier Enforcement, or the Nebraska Department of Motor Vehicles Division of Motor Carrier Services are not included within the definition of school bus.

002.06A Type A School/Activity Bus is a conversion or body constructed upon a van-type compact truck or a front-section vehicle with a left side driver's door and designed for carrying more than ten (10) persons. This definition includes Type A-1, with a Gross Vehicle Weight Rating (GVWR) of 14,500 pounds or less and Type A-2, with a GVWR of greater than 14,500 pounds and less than or equal to 21,500 pounds.

002.06B Type B School/Activity Bus is a conversion or body constructed and installed upon a van or front-section vehicle chassis, or stripped chassis. This definition includes Type B-1, with a GVWR of less than 10,000 pounds and Type B-2 with a GVWR of more than 10,000 pounds. This vehicle is designed for carrying more than ten (10) persons. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels.

002.06C Type C School/Activity Bus is a body installed upon a flat back cowl chassis with a GVWR of more than 21,500 pounds, and designed for carrying more than ten (10) persons. All of the engine is in front of the windshield and the entrance door is behind the front wheels.

002.06D Type D School/Activity Bus is a body installed upon a chassis with the engine mounted in the front, midship, or rear, with a gross vehicle weight rating of more than 10,000 pounds, and designed for carrying more than ten (10) persons. The engine may be behind the windshield and beside the driver's seat, it may be at the rear of the bus, behind the rear wheels, or midship between the front and rear axles. The entrance door is ahead of the front wheels.

002.07 Small Vehicle means a motor vehicle with motive power, except a trailer, designed or modified by the manufacturer, distributor or dealer for carrying ten (10) or fewer passengers, excluding the driver, meeting or exceeding Nebraska Department of Education minimum standards for small vehicles which at any time would be used to carry students exclusively that is sponsored and approved by the local school governing board. If the seating capacity of the vehicle has been reduced to meet the definition of a small vehicle, the manufacturer, distributor, or dealer shall recertify the vehicle if required by 49 CFR 567.7. The capacity of the vehicle shall be posted inside the vehicle in a conspicuous location. The preceding definition is not intended to include private motor vehicles used exclusively to carry members of the owner's household.

002.07A Vehicles that have an original manufacturer's vehicle type classification label under 49 CFR 567.4 of "bus" and that have an original manufacturer's designated seating capacity of 15 persons maximum (e.g. 15-passenger vans) shall not qualify as a small vehicle.

002.08 Pupil Transportation Vehicle means any vehicle utilized to carry school children as sponsored and approved by the local school governing board and conforms to the Nebraska Department of Education definitions of pupil transportation vehicles listed in this Chapter.

003 Responsibility of the Schools.

003.01 Vehicle Purchase and Use. Schools shall use only school buses, activity buses and equipment which comply with the minimum equipment standards in effect on the date the vehicles were manufactured. Vehicles with manufacturer's rated seating capacity of eleven or more passengers manufactured prior to April 1, 1977, shall not qualify as a pupil transportation vehicle and shall not be used for pupil transportation unless a "coach bus" used as provided in subsection 003.04.

003.01A Schools may purchase and use vehicles that have certain chassis or body equipment that comply with the standards applicable to the vehicle on the date of the vehicle's manufacture, while having other certain chassis or body equipment that instead comply with the standards concerning such equipment in effect on a later, but only if the school files a written assurance statement with NDE that: (i) describes which chassis or body equipment on the vehicle complies with the standards in effect on the later date but not on the date of manufacture; and (ii) after inquiring of its board appointed mechanic or other individual it deems qualified, the school is satisfied that no safety hazards or dangerous conditions are created by having a combination of such equipment.

003.02 Activity Buses. Activity Buses, when used exclusively for an activity trip or trips, are exempt from the following requirements of this Chapter:

003.02A Subsection 005.10(color)

003.02B Subsection 005.32C (alternating flashing signal lamps)

003.02C Subsection 005.49 (stop signal arm)

003.03 Use of a School Bus for Purposes Other Than Transporting Students. If a school bus is used for purposes other than transporting students, it must be in compliance with Section 60-6,175(7) R.R.S.

003.04 Use of Coach Buses By Schools. Schools may charter or contract for the use of coach buses or other vehicles, as described in Section 79-602 R.R.S., if such vehicles have been inspected or are subject to inspection under the rules and regulations of the Public Service Commission, Carrier Enforcement Division of the State Patrol, or the Division of Motor Carrier Services pursuant to Sections 75-363 through 75-369.07 R.R.S. Schools may own and operate coach buses for use on student activity trips if: (1) such vehicles are exempt from the inspection under Section 79-602 R.R.S., or (2) if such vehicles are not exempt from inspection under Section 79-602 R.R.S., if the school board or governing authority has such a vehicle inspected before school opens in the Fall and each eighty (80) days during that part of the year when school is in session by a motor vehicle mechanic it has appointed. The mechanic

shall thoroughly inspect every vehicle as to brakes, lights, windshield wipers, window glass, tires, doors, heaters, defrosting equipment, steering gear, and exhaust system for compliance with the criteria prescribed for these items in Appendix H and Section 010 of this Chapter. Within five (5) days after such inspection, the mechanic shall make a report of his or her inspection in writing on forms provided by the Department of Education to the local school board or governing authority, and the Board or governing authority shall cause any deficiencies to be corrected.

003.04A Federal motor vehicle safety laws and regulations (49 U.S.C. Secs. 30112 and 30125, 49 CFR Part 571), require that a person may not sell a "new", ("first purchase"), vehicle designed to carry more than ten (10) passengers that is likely to be used significantly to transport preprimary, primary, and secondary school students to or from school or an event related to school if the vehicle does not conform to the Federal Motor Vehicle Safety Standards for "school buses" in 49 CFR Part 571.

003.05 Compliance with Minimum Allowable Safety Criteria. As provided in Section 79-602 R.R.S., the school's appointed mechanics shall inspect and assure that pupil transportation vehicles meet the minimum allowable safety criteria. Any item not meeting such criteria shall be brought into compliance prior to the vehicle being used to transport students.

004 Chassis and Body Delivery Requirements.

004.01 The body and chassis manufacturer shall provide the following materials and information for direct delivery to the customer:

004.01A Line set tickets for each individual unit.

004.01B A copy of the pre-delivery service performed and verified by a checkout form for each individual unit.

004.01C Warranty book and statement of warranty for each individual unit.

005 School Bus and Activity Bus Body and Chassis Minimum Equipment Standards.

005.01 Air Cleaner. A dry element type air cleaner shall be provided.

005.01A All diesel engine air filters shall include a latch-type restriction indicator that retains the maximum restriction developed during operation of the engine. The indicator should include a reset control so the indicator can be returned to zero when desired.

005.02 Aisle.

005.02A All emergency exit doors shall be accessible by a 12-inch minimum aisle. Minimum clearance of aisle or passageway between seat rows leading to side emergency doors shall be a minimum of 12 inches at seat level.

005.02B Aisle shall be unobstructed at all times by any type of barrier, seat, wheelchair or tie down, unless a flip seat is installed and occupied.

005.02C The track of a track seating system is exempt from the requirements of subsections 005.02A and 005.02B above.

005.03 Axles. The front and rear axle and suspension systems shall have a gross axle weight rating (GAWR) at ground commensurate with the respective front and rear weight loads of the bus loaded to the rated passenger capacity.

005.04 Back-up Warning Alarm. An automatic audible alarm shall be installed behind the rear axle and shall comply with the published Backup Alarm Standards -Society of Automotive Engineers (SAE J994B), providing a minimum of 112 dBA or shall have a variable volume feature that allows the alarm to vary from 87 dBA to 112 dBA sound level, staying at least 5 dBA above the ambient noise level.

005.05 Body Sizes.

005.05A The overall width of the school bus shall not exceed 102 inches, excluding accessories.

005.05B Bodies for conventional body-on-chassis type buses shall conform to all applicable provisions of the Federal Motor Vehicle Safety Standards (FMVSS).

005.05C The overall length of the school bus (body and chassis) shall not exceed 45 feet, excluding accessories.

005.05D The minimum inside body height shall be 72 inches measured at any point on longitudinal center line from front vertical bow to rear vertical bow. (Type A-1 buses shall be 62 inches or more.)

005.06 Brakes.

005.06A School bus chassis with a manufacturer's rated capacity of 72 passengers or greater shall be equipped with full compressed air brakes.

005.06B Brakes - General.

005.06B1 The chassis brake system shall conform to the provisions of FMVSS No. 105, *Hydraulic and Electric Brake Systems,* No. 106*, Brake Hoses,* and No.121, *Air Brake Systems,* as applicable. All buses shall have either a parking pawl in the transmission or a park brake interlock that requires the service brake to be applied to allow release of the parking brake.

005.06B2 The anti-lock brake system (ABS), provided in accordance with FMVSS No. 105, *Hydraulic and Electric Brake Systems* or No. 121 *Air Brake Systems*, shall provide wheel speed sensors for each front wheel and for each wheel on at least one (1) rear axle. The system shall provide anti-lock braking performance for each wheel equipped with sensors. (Four Channel System).

005.06B3 All brake systems shall be designed to permit visual inspection of brake lining wear without removal of any chassis component(s).

005.06B4 The brake lines, booster-assist lines, and control cables shall be protected from excessive heat, vibration and corrosion and installed in a manner which prevents chafing.

005.06B5 The parking brake system for either air or hydraulic service brake systems may be of a power assisted design. The power parking brake actuator shall be a device located on the instrument panel within seated reach of the 5th percentile female driver. As an option, the parking brake may be set by placing the automatic transmission shift control mechanism in the “park” position.

005.06B6 The power-operated parking brake system may be interlocked to the engine key switch. Once the parking brake has been set the ignition switch turned to the “off” position, the parking brake cannot be released until the key switch is turned back to the “on” position.

005.06C Hydraulic Brakes.

005.06C1 Buses using a hydraulic-assist brake shall meet the requirements of FMVSS 105.

005.06D Air Brakes.

005.06D1 The air pressure supply system shall include a desiccant-type air dryer installed according to the manufacturers’ recommendations. The air pressure storage tank system may incorporate an automatic drain valve.

005.06D2 The chassis manufacturer shall provide an accessory outlet for air-operated systems installed by the body manufacturer. This outlet shall include a pressure protection valve.

005.06D3 For air brake systems, an air pressure gauge shall be provided in the instrument panel capable of complying with Commercial Driver’s License (CDL) pre-trip inspection requirements.

005.06D4 Air brake-equipped buses shall be equipped with a service brake interlock. The parking brake cannot be released until the brake pedal is depressed.

005.06D5 Air brake systems shall include a system for anti-compounding of the service brakes and parking brakes.

005.06D6 Air brakes shall have both a visible and audible warning device whenever the air pressure falls below the level where warnings are required under FMVSS No. 121, *Air Brake Systems*.

005.07 Bumpers, Front.

005.07A All school buses shall be equipped with a front bumper.

005.07B In all buses except Type A-1 buses, the front bumper shall be equivalent in strength and durability to pressed steel channel, at least 3/16 inch thickness and not less than 8 inch wide (high). It shall extend beyond forward-most part of the body, grille, hood, and fenders and shall extend to outer edges of the fenders at the bumper's top line.

Type A-1 buses having a GVWR of 14,500 pounds or less may be equipped with an Original Equipment Manufacturer (OEM) supplied bumper. The front bumper shall be of sufficient strength to permit being pushed by another vehicle on a smooth surface with a 5 degree (8.7 percent) grade, without permanent distortion. The contact point on the front bumper is between the frame rails, with as wide a contact area as possible. If the front bumper is used for lifting, the contact points shall be under the bumper attachments to the frame rail brackets unless the manufacturer specifies different lifting points in the owner's manual. Contact and lifting pressures should be applied simultaneously at both lifting points.

005.07C The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight without permanent distortion to the bumper, chassis or body.

005.07D Tow eyes or hooks shall be furnished and attached so they do not project beyond the front bumper. Tow eyes or hooks attached to the chassis frame shall be furnished by the chassis manufacturer. This installation shall be in accordance with the chassis manufacturer's specifications. (Type A buses are exempt.) (See Section 005.54).

005.07E The bumper shall be designed or reinforced so that it will not deform when the bus is lifted by a chain that is passed under the bumper (or through the bumper if holes are provided for this purpose) and attached to both tow eyes. For the purpose of meeting this standard, the bus shall be empty and positioned on a level, hard surface and both tow eyes shall share the load equally.

005.08 Bumpers, Rear.

005.08A Type A-1 bus bumpers shall be a minimum of 8 inches wide (high). Type A-2, B, C, and D bus rear bumper shall be a minimum of 9½ inches wide. The bumper shall be of sufficient strength to permit being pushed by another vehicle without permanent distortion.

005.08B The bumper shall be wrapped around back corners of bus. It shall extend forward at least 12 inches, measured from rearmost point of body at floor line and shall be flush-mounted to the body sides or protected with an end panel.

005.08C The bumper shall be attached to chassis frame in such a manner that it may be removed. It shall be braced to resist deformation of the bumper resulting from impact from the rear and side.

005.08D The bumper shall extend at least 1 inch beyond rear-most part of body surface measured at the floor line.

005.08E The bottom of the rear bumper shall not be more than 30 inches above ground level.

005.09 Certification.

005.09A Upon request by the Nebraska Department of Education, chassis manufacturers will certify that their products meets Nebraska's minimum standards on items which are not covered by FMVSS certification requirements of 49 CFR, Part 567: Certification.

005.09B Vendors of school buses shall certify, in writing, to the school bus purchaser that their product meets or exceeds all applicable Federal and State of Nebraska rules and regulations in effect at the corresponding date of manufacture; or in the alternative, the vendor shall provide to the purchaser a description of what equipment complies instead with minimum chassis and/or body standards in effect on a later date in accordance with Section 003.01A of this Chapter.

005.10 Color. (Activity buses are exempt.)

005.10A The school bus body shall be painted National School Bus Yellow as specified and described in the School Bus Manufacturer's Technical Council publication "National School Bus Yellow Color Standard" (NSBY) (SBMTC-008) (See Appendix A).

005.10B The body exterior paint trim shall be black or NSBY.

005.10C The roof of the bus may be painted white except that front and rear roof caps shall remain NSBY.

005.10D Chassis and front bumper shall be painted black.

005.10E Body, cowl hood and fenders shall be painted NSBY. The flat top surface of the hood may be nonreflective black or NSBY.

005.10F Wheels may be silver, gray, white, yellow or black.

005.10G Retro Reflective Sheeting (See Appendix F)

005.10G1 Front and rear bumper shall be marked diagonally 45 degrees down to centerline of pavement with 2 inch wide strips of non-contrasting reflective material.

005.10G2 Rear of bus body shall be marked with strips of reflective National School Bus Yellow material to outline the perimeter of the back of the bus using material which conforms with the requirements of FMVSS No. 131, *School Bus Pedestrian Safety Devices Table 1* in effect on date of manufacture. The perimeter marking of rear emergency exits per FMVSS No. 217 *Bus Emergency Exits and Window Retention and Release* and/or the use of reflective "SCHOOL BUS" signs partially accomplish the objective of this requirement. To complete the perimeter marking of the back of the bus, strips of a minimum of 1 inch and a maximum of 2 inches in width of reflective National School Bus Yellow material shall be applied horizontally above the rear windows and above the rear bumper extending from the rear emergency exit perimeter marking outward to the left and right rear corners of the bus; and vertical strips shall be applied at the corners connecting these horizontal strips.

005.10G3 "SCHOOL BUS" signs, if not of lighted design, shall be marked with reflective National School Bus Yellow material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs.

005.10G4 Sides of bus body shall be marked with reflective National School Bus Yellow Material at least 1 3/4 inches in width, extending the length of the bus body and located (vertically) between the floor line and the beltline.

005.10H Multifunction school activity buses (MFSABs) are exempt from the requirements in subsection 005.10G above.

005.11 Communications. School bus shall be equipped with a two-way communication system which can be used at any point on the vehicle's route. The system can be after-market provided.

005.12 Construction.

005.12A Construction shall provide a reasonably dustproof and watertight unit.

005.12A1 Buses shall meet FVMSS 220, *Rollover Protection and* FMVSS 221, *Body Joint Strength.*

005.12A2 For buses manufactured on or after the implementation date of this Rule**:**

005.12A2a Buses shall pass the "Side Intrusion Test." The bus body shall be constructed to withstand an intrusion force equal to the curb weight of the vehicle or 20,000 pounds, whichever is less. Each vehicle shall be capable of meeting this requirement when tested in accordance with the procedures set forth below.

The complete body structure, or a representative seven-body section mock up with seats installed, shall be load-tested at a location 24-inches plus or minus two inches above the floor line, with a maximum 10-inch diameter cylinder, 48 inches long, mounted in a horizontal plane.

The cylinder shall be placed as close as practical to the mid-point of the tested structure, spanning two internal vertical structural members. The cylinder shall be statically loaded to the required force of curb weight or 20,000 pounds, whichever is less, in a horizontal plane with the load applied from the exterior toward the interior of the test structure. Once the minimum load has been applied, the penetration of the loading cylinder into the passenger compartment shall not exceed a maximum of ten inches from its original point of contract. There can be no separation of lapped panels or construction joints. Punctures, tears or brakes in the external panels are acceptable but are not permitted on any adjacent interior panel.

Body companies shall certify compliance with this intrusion requirement, including test results, if requested by the Nebraska Department of Education.

005.12B If floor insulation is requested by the local school district or governing authority, it shall be either 5 ply softwood plywood nominal 5/8 inch thick plywood, or a material of equal or greater strength and insulation R-value and it shall equal or exceed properties of exterior-type, C-D Grade, as specified in standard PSI-83 issued by U.S. Department of Commerce. All exposed edges shall be sealed. Type A buses shall be equipped with nominal ½ inch thick plywood meeting above requirements. Equivalent material may be used to replace plywood, provided it has equal or greater insulation R-value, sound abatement, deterioration-resistant and moisture-resistant properties.

005.12C Construction shall be reasonably dust-proof and watertight.

005.13 Defrosters. (Also see Section 005.26 Heating System)

005.13A All school buses shall be equipped with defrosters with sufficient flow of heated air to keep windshield, window to left of driver and glass in entrance door clear of fog, frost and snow. The defrosting system shall conform to SAE J381 *Windshield Defrosting Systems Test Procedure and Performance Requirements—Trucks, Buses, and Multipurpose Vehicles*.

Note: The requirements of this standard do not apply to the exterior surfaces of double pane storm windows.

005.13B The defroster and defogging system shall be capable of furnishing heated, outside ambient air except that part of the system furnishing additional air to the windshield, entrance door and step well may be of the recirculating air type.

005.13C Auxiliary fans are not considered defrosting or defogging systems.

005.13D Portable heaters shall not be used.

005.14 Doors.

005.14A Entrance Door.

005.14A1 Entrance door shall be in the driver's control, designed as to afford easy release and provide a positive latching device on manual operating door to prevent accidental opening. Manual door controls shall not require more than 25 pounds of force to operate at any point throughout the range of operation, as tested on a 10 percent grade both uphill and downhill.

005.14A2 Entrance door shall be located on right side of bus opposite driver within direct view of driver.

005.14A2a Buses may be equipped with a left side entrance door located immediately behind the driver to be used exclusively for curb side loading/unloading on one-way streets.

005.14A2b Buses equipped with a left side entrance door shall have a mirror mounted in the upper right corner of the interior of the bus to provide a clear view of the left side entrance door and stepwell.

005.14A3 Entrance door shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches.

005.14A4 Entrance door shall be of split type and shall open outward.

005.14A5 All entrance door glass shall be made of safety glass. Bottom of lower glass panel shall not be more than 10 inches from the top surface of the bottom step. Top of upper glass panel when viewed from the interior shall not be more than 3 inches below the interior door control cover or header pad.

005.14A6 Vertical closing edges shall be equipped with flexible material.

005.14A7 Power operated doors must be equipped with an emergency release valve, switch or device placed above or to the immediate left or right of the service door and clearly labeled. The emergency release valve, switch or device shall work in the absence of power.

005.14A8 Padding at the top of edge of each door opening shall be 3 inches wide and 1 inch thick and extend full width of the door opening.

005.14B Emergency Exits.

005.14B1 All installed emergency exits shall comply with the design and performance requirements of FMVSS No. 217, *Bus Emergency Exits and Window Retention and Release,* applicable to that type of exit, regardless of whether or not that exit is required by FMVSS No. 217.

005.14B1a The upper portion of the emergency door shall be equipped with safety glazing, the exposed area of which shall be at least 400 square inches. If installed, all other glass panels on emergency doors shall be equipped with safety glazing.

005.14B1b There shall be no steps leading to an emergency door.

005.14B1c There shall be no obstruction higher than ¼ inch across the bottom of any emergency door opening. Fasteners used within the emergency exit opening shall be free of sharp edges or burrs.

005.14B1d The rear emergency window shall have an assisted lifting device that will aid in lifting and holding the rear emergency window open.

005.14B2 Emergency Exit Requirements: The following tables determine the required number and types of emergency exits to comply with this specification:

005.14B2a A school bus will meet the requirements of this specification and the requirements of FMVSS 217 if it contains the types and quantities of emergency exits listed on the row selected.

TABLE 1
BUSES WITH REAR EMERGENCY DOOR
(All Front Engine Buses)

Available Combinations By Capacity	Manufacturers Equipped Capacity	Shall Have	And Shall Also Have		
		Roof Hatch	L. Side Emerg. Exit Windows	R. Side Emerg. Exit Windows	L. Side Emerg. Exit Door
1-45	1-45	1	0	0	0
46-77	46-77	2	1	1	0
	46-77	2	0	0	1
78-93	78-93	2	2	2	0
	78-93	2	1	1	1

TABLE 2
BUSES WITH REAR PUSHOUT WINDOW AND LEFT SIDE EMERGENCY DOOR
(All Rear Engine Buses)

Available Combinations By Capacity	Manufacturers Equipped Capacity	Shall Have	And Shall Also Have		
		Roof Hatch	L. Side Emerg. Exit Windows	R. Side Emerg. Exit Windows	R. Side Emerg. Exit Door
1-45	1-45	1	0	0	0
46-89	46-89	2	1	1	0
	46-89	2	0	0	1
90-105	90-105	2	2	2	0
	90-105	2	1	1	1

005.14B3 Side emergency exit windows when installed may be vertically hinged on the forward side of the window. No side emergency exit window will be located above the stop arm.

005.15 Drive Shaft.

005.15A The drive shaft shall be protected by a metal guard or guards of steel or equivalent strength around circumference of the drive shaft to prevent it from whipping through floor or dropping to ground if broken.

005.16 Electrical System.

005.16A Battery.

005.16A1 The storage batteries shall have minimum cold cranking capacity rating (cold cranking amps) equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit and a minimum reserve capacity rating of 120 minutes at 25 amps.

005.16A2 All batteries are to be secured in a slide-out or swingout tray in a closed, vented compartment in the body skirt or chassis frame so that the battery is accessible for convenient servicing from the outside. When in the stored position, the tray shall be retained by a securing mechanism capable of holding the tray [with battery(ies)] in position when subjected to a 5g load from any direction. The battery compartment door or cover, if separate from the tray, shall be hinged at the front or top. It shall be secured by a positive operated latching system or other type fastener. The door may be an integral part of the battery slide tray. The door or cover must fit tightly to the body, and not present sharp edges or snagging points. Battery cables shall meet SAE requirements. Battery cables shall be of sufficient length to allow the

battery tray to fully extend. Any chassis frame-mounted batteries shall be relocated to a battery compartment on Type A buses.

005.16A3 All batteries are to be secured in a sliding tray except that on van conversion or cutaway front-section chassis, batteries may be secured in accordance with the manufacturer's standard configuration. In these cases, the final location of the battery and the appropriate cable lengths shall be agreed upon mutually by the chassis and body manufacturers. However, in all cases the battery cable provided with the chassis shall have sufficient length to allow some slack, and shall be of sufficient gauge to carry the required amperage.

005.16A4 Buses may be equipped with a battery shut-off switch. The switch is to be placed in a location not readily accessible to the driver or passengers.

005.16B Alternator.

005.16B1 All Type A and Type B buses with a GVWR of 15,000 lbs or less shall have a minimum 130-amp alternator. Buses equipped with an electrically powered wheelchair lift and/or air conditioning shall be equipped with the highest rated capacity available from the chassis OEM.

005.16B2 All buses over 15,000 lbs shall be equipped with a heavy-duty truck or bus-type alternator having a minimum output rating of 200-amp or higher, and should produce a minimum current output of 50 percent of the rating at engine idle speed.

005.16B3 All other buses than those described in subsection 005.16B1 equipped with an electrically powered wheelchair lift and/or air conditioning shall have a minimum output of 240 amps and may be equipped with a device that advances the engine idle speed when the voltage drops to, or below, a pre-set level.

005.16B4 A belt alternator drive shall be capable of handling the rated capacity of the alternator with no detrimental effect on any other driven components. (See School Bus Manufacturer Technical Council's "School Bus Technical Reference" for estimating required alternator capacity.)

005.16B5 A direct drive alternator is permissible in lieu of a belt driven alternator.

005.16C Electrical Components. Materials in all electrical components shall contain no mercury.

005.16D Wiring. Chassis.

005.16D1 All wiring shall conform to current applicable recommended practices of the Society of Automotive Engineers (SAE).

005.16D2 All wiring shall use color and at least one other method of identification. The other method shall be either a number code or name code, and each chassis shall be delivered with a wiring diagram that illustrates the wiring of the chassis.

005.16D3 The chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl or in an accessible location in the engine compartment of vehicles designed without a cowl. The strip or plug shall contain the following terminals for the body connections:

005.16D3a Main 100 amp body circuit;

005.16D3b Tail lamps;

005.16D3c Right turn signal;

005.16D3d Left turn signal;

005.16D3e Stop lamps;

005.16D3f Back-up lamps; and

005.16D3g Instrument panel lights (controlled by dimmer switch).

005.16D4 An appropriate identifying diagram (color plus a name or number code) for all chassis electrical circuits shall be provided to the body manufacturer for distribution to the end user.

005.16D5 The headlight system must be wired separately from the electronic controlled body solenoid/module.

005.16E Wiring, Body.

005.16E1 Wiring shall be arranged in circuits as required with each circuit protected by a fuse or electronic protection device. A system of color and number coding shall be used and an appropriate identifying diagram shall be provided to the end user along with the wiring diagram provided by the chassis manufacturer. The wiring diagrams shall be specific to the bus model supplied and include any changes to wiring made by the body manufacturer. Chassis wiring diagrams shall also be supplied to the end user. A system of color and number coding shall be used on buses. The following body interconnecting circuits shall be color coded as noted:

FUNCTION	COLOR
Left Rear Directional Lamp	Yellow
Right Rear Directional Lamp	Dark Green
Stop Lamps	Red
Back-up Lamps	Blue
Tail Lamps	Brown
Ground	White
Ignition Feed, Primary Feed	Black

The color of the cables shall correspond to SAE J 1128, *Low-Tension Primary Cable.*

005.16E2 Wiring shall be arranged in at least six (6) regular circuits as follows:

005.16E2a Head, tail, stop (brake), clearance and instrument panel lamps.

005.16E2b Step well lamps shall be actuated when entrance door is open.

005.16E2c Dome lamps.

005.16E2d Ignition and emergency door signal.

005.16E2e Turn signal lamps.

005.16E2f Alternately flashing signal lamps.

005.16E3 Any of above combination circuits may be subdivided into additional independent circuits.

005.16E4 Heaters and defrosters shall be wired on an independent circuit.

005.16E5 Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in readily accessible location. Buses may be equipped with a 12-volt power port in the driver's area.

005.16E6 All other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

005.16F Wires not enclosed within body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equal effective connectors which shall be water-resistant and corrosion-resistant.

005.16G All wiring shall have an amperage capacity exceeding the design load by at least 25 percent. All wiring splices are to be noted as splices on the wiring diagram.

005.16H A body wiring diagram sized to be easily read, shall be furnished with each bus body or affixed in an area convenient to the electrical accessory control panel.

005.16I The body power wire shall be attached to a separate terminal on the chassis.

005.16J All wires passing through metal openings shall be protected by a grommet.

005.16K All wiring shall conform to current applicable SAE recommended practices.

005.16L A manual noise suppression switch must be installed in the control panel. The switch shall be labeled and alternately colored. This switch shall be an on/off type that deactivates body equipment that produces noise, including at least the AM/FM radio, heaters, air conditioners, fans and defrosters. This switch shall not deactivate safety systems, such as windshield wipers or lighting systems.

005.16M The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted. The reference to a common body/chassis voltage does not apply to buses utilizing a high voltage propulsion system (more than 48 nominal volts), commonly referred to as "High Voltage-Powered Vehicles."

005.17 Emergency Equipment. All buses shall be equipped with emergency equipment as listed in this section. Any of the following emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less than one-inch letters, identifying each piece of equipment contained therein.

005.17A Fire Extinguisher. The bus shall be equipped with at least one (1) Underwriter's Laboratory Inc. (UL) approved pressurized, dry chemical-type fire extinguisher, with hose, mounted and secured in a bracket located in the driver's compartment readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher shall be easily read without moving the extinguisher from its mounted position.

005.17A1 The fire extinguisher shall have a total rating of 2-A:10-BC or greater. The operating mechanism shall be sealed with a type of seal that will not interfere with use of the fire extinguisher.

005.17B First Aid Kit. The bus shall have at least one removable, moisture proof and dustproof first aid kit in an accessible place in the driver's compartment. It shall be properly mounted and clearly identified as a first aid kit. The location for the first aid kit shall be marked. Contents of the first aid kit are listed in Appendix B of this Chapter.

005.17B1 All school bus bodies with a manufacturer's rated seating capacity of thirty (30) or less shall be equipped with one (1) first aid kit.

005.17B2 All school bus bodies with a manufacturer's rated seating capacity greater than thirty (30) shall be equipped with two (2) first aid kits.

005.17B3 When two (2) first aid kits are carried on the bus, one (1) kit shall be mounted over the rear exit door and the other in the driver's compartment.

005.17C Body Fluid Clean-up Kit. Each bus shall have a removable and moisture proof body fluid clean-up kit. It shall be securely mounted and identified as a body fluid clean-up kit. (Required contents of kit are listed in Appendix C of this Chapter.)

005.17D Warning Devices. The school bus shall carry three (3) retroreflective triangle road warning devices that meet the requirements of FMVSS No. 125, *Warning Devices.* They shall be mounted in an accessible place.

005.18 Exhaust System.

00518A Exhaust pipe, after treatment system, and tailpipe shall be outside the bus body compartment and attached to chassis, so as not to damage any other chassis component.

005.18B Tailpipe and after treatment system shall be constructed of corrosion resistant tubing of 16-gauge steel or equivalent.

005.18C The tailpipe shall not extend more than two inches beyond the perimeter of the body for side-exit pipe or the bumper for rear-exit pipe. The exhaust system shall be designed such that exhaust gas will not be trapped under the body of the bus.

005.18D The tailpipe shall exit to the left or right of the emergency exit door in the rear of the vehicle or to the left side of the bus in front of or behind the rear drive axle or the tailpipe may extend through the bumper. The tailpipe exit location on all Types A-1 or B-1 buses may be in accordance to the manufacturer's standards. The tailpipe shall not exit beneath any fuel filler location, emergency door or lift door.

005.18E The exhaust system shall be insulated in a manner to prevent any damage to any fuel system component.

005.18F The design of the after treatment systems shall not allow active (non-manual) regeneration of the particulate filter during the loading and unloading of passengers. Manual regeneration systems will be designed such that unintentional operation will not occur.

005.18G For after treatment systems that require Diesel Exhaust Fluid (DEF) to meet federally mandated emissions:

005.18G1 The composition of Diesel Exhaust Fluid (DEF) must comply with International Standard ISO 22241-1. Refer to engine manufacturer for any additional DEF requirements.

005.18G2 The DEF supply tank shall be sized to meet a minimum ratio of 3 diesel fills to 1 DEF fill.

005.19 Fenders, Front - Type C Vehicles.

005.19A When measured at the fender line, total spread of outer edges of front fenders shall exceed the total spread of front tires when front wheels are in a straight ahead position.

005.19B Front fenders shall be braced and free from any body attachment.

005.20 Floor, Covering.

005.20A Floor in the under seat area, including tops of wheel housings, driver's compartment, and toe board, shall be covered with an elastomer floor covering, having a minimum overall thickness of .125 inch and a calculated burn rate of 0.1 or less, using the test methods, procedures and formulas listed in FMVSS No. 302, *Flammability of Interior Materials*. The floor under the driver's seat in all Type A buses may be manufacturer's standard flooring and floor covering.

005.20B Floor covering in aisle shall be ribbed or other pattern of elastomer and have a calculated burn rate of 0.1 or less using the test methods, procedures, and formulas listed in FMVSS No. 302, *Flammability of Interior Materials*. Minimum overall thickness shall be 3/16th in. measured from tops of ribs.

005.20C Floor covering must be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be of type recommended by manufacturer of floor-covering material. All seams must be sealed with waterproof sealer.

005.20D A flush-mounted, screw-down plate that is secured and sealed shall be provided to access the fuel tank sending unit and or fuel pump. (This plate shall not be installed under flooring material. (Type A Buses are exempt.)

005.21 Frame.

005.21A Frame lengths shall be established in accordance with the design criteria for the complete vehicle.

005.21B Any secondary manufacturer that modifies the original chassis frame shall provide a warranty at least equal to the warranty offered by the original equipment manufacturer (OEM), and shall certify that the modification and other parts or equipment affected by the modification shall be free from defects in material and workmanship under normal use and service intended by the OEM.

005.21C Holes in top or bottom flanges or, side units of the frame, and welding to the frame shall not be permitted except as provided or accepted by the chassis manufacturer.

005.21D Frames shall not be modified for the purpose of extending the wheelbase.

005.22 Fuel Tank.

005.22A Fuel tank or tanks shall be provided by the chassis manufacturer. The tanks shall be filled and vented to the outside of the body and the fuel filter should be placed in a location where accidental fuel spillage will not drip or drain on any part of the exhaust system.

005.22B Fuel lines shall be mounted to the chassis frame in such a manner that the frame provides the maximum possible protection from damage.

005.22C The fuel system shall comply with FMVSS No. 301, *Fuel System Integrity*.

005.22D Fuel tank(s) may be mounted between the chassis frame rails or outboard of the frame rails on either the left or right side of the vehicle. The actual draw capacity of each fuel tank shall be a minimum of 83% of the tank capacity.

005.22E Installation of alternative fuel systems, including fuel tanks and piping from tank to engine, shall comply with all applicable fire codes in effect on the date of manufacture of the bus.

005.22E1 Installation of Liquefied Petroleum Gas (LPG) tanks shall comply with National Fire Protection Association (NFPA) 58.

005.22E2 Installation of Compressed Natural Gas (CNG) containers shall comply with FMVSS No. 304, *Compressed Natural Gas Fuel Container Integrity.*

005.22E3 The CNG Fuel System shall comply with FMVSS No. 303, *Fuel System Integrity of Compressed Natural Gas Vehicles.*

005.23 Fuel Alternative. School transportation vehicles may use alternative fuel systems. The fuel system integrity shall meet the specified leakage performance standards when impacted by a moving contoured barrier in accordance with test conditions specified in FMVSS No. 301 or FMVSS No. 303, as applicable.

005.23A Chassis shall meet all specifications in Section 005 of this Chapter.

005.23B Chassis shall meet all applicable Federal Motor Vehicle Safety Standards (FMVSS).

005.23C The fuel system integrity shall meet the specified leakage performance standards when impacted by a moving contoured barrier in accordance with test conditions specified in FMVSS No. 301, *Fuel System Integrity*, or FMVSS No. 303, *Fuel System Integrity of Compressed Natural Gas Vehicles*, as applicable.

005.23D Original equipment manufacturers (OEMs) and conversion systems using compressed natural gas (CNG) shall comply with National Fire Protection Association (NFPA) Specification 52 2013, *Compressed Natural Gas Vehicular Fuel Systems*. Fuel systems using liquefied petroleum gas (LPG) shall comply with NFPA Specification 58 2014, *Liquefied Petroleum Gases Engine Fuel Systems*.

005.23E Fuel tank(s) for vehicles of less than 54 passenger capacity powered by LPG or CNG shall have a minimum 40-gallon capacity. Fuel tank(s) for vehicles of 54 or more passenger capacity powered by LPG or CNG shall have a minimum 60-gallon capacity.

005.23F Natural gas-powered buses may be equipped with an interior/exterior gas detection system. All natural gas-powered buses may be equipped with an automatic or manual fire detection and suppression system.

005.23G All materials and assemblies used to transfer or store alternative fuels shall be installed outside the passenger/driver compartment.

005.23H All Types C and D buses using alternative fuels shall meet the same base requirements of BUS CHASSIS SPECIFICATIONS for passenger load.

005.23I The total weight shall not exceed the vehicle's GVWR when loaded to rated capacity.

005.23J The manufacturer supplying the alternative fuel equipment must provide the owner and operator with adequate training and certification in fueling procedures, scheduled maintenance, troubleshooting and repair of alternative fuel equipment.

005.23K All fueling equipment shall be designed specifically for fueling motor vehicles and shall be certified by the manufacturer as meeting all applicable federal, state and industry standards.

005.23L All on-board fuel supply containers shall meet all appropriate requirements of the American Society for Mechanical Engineering (ASME) code, United States Department of Transportation (USDOT) regulations or applicable FMVSSs and NFPA standards.

005.23M All fuel supply containers shall be securely mounted to withstand a static force of eight times their weight in any direction.

005.23N All safety devices that discharge to the atmosphere shall be vented to the outside of the vehicle. The discharge line from the safety relief valve on all school buses shall be located in a manner appropriate to the characteristics of the alternative fuel. Discharge lines shall not pass through the passenger compartment.

005.23O CNG buses shall have a positive, quick-acting (¼ turn) shut-off control valve which shall be installed in each gaseous fuel supply line, as close as possible to the fuel supply containers. The valve controls shall be placed in a location easily operable from the exterior of the vehicle. The location of the valve controls shall be clearly marked on the exterior surface of the bus.

005.23P An electrical grounding system shall be required for grounding of the fuel system during maintenance-related venting.

005.23Q Fuel systems identified as compatible with biodiesel must be provided with components compatible with biodiesel conforming to the specifications of ASTM 6751, *Biodiesel Standard*.

005.23R High Voltage-Powered Vehicles: Buses utilizing a high voltage propulsion system (more than 48 nominal volts) shall meet the requirements of FMVSS 305, *Electric Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection*, except for the following:

005.23R1 The propulsion power source (batteries, fuel cells, etc.) shall be located outside the passenger compartment.

005.23R2 The propulsion power source enclosure shall be constructed to conform to the power source manufacturer's requirements and recommendations.

005.23R3 Due to the much larger size and quantities of the propulsion power sources on larger vehicles, buses over 10,000 lbs are permitted to exceed the 5.0 liter spillage constraint of Section S5.1, *Electrolyte damage from propulsion batteries* and the requirements to statically rotate the vehicle on its longitudinal axis post test.

005.24 Governor. The engine and road speed governors may be installed to limit engine speed to a maximum revolutions per minute as recommended by the engine manufacturer.

005.25 Handrails. At least one handrail shall be installed. The handrail shall be a minimum of 1" diameter and be constructed from corrosion resistant material(s). The handrail(s) shall assist passengers during entry or exit and shall be designed to prevent entanglement, as evidenced by the passing of the NHTSA string and nut test.

005.26 Heating System & Air Conditioning System. The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one inch inside diameter automotive hot water heater hose. (See SBMTC-001, *Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment*.)

005.26A Heating and Air Conditioning Systems

005.26A1 Heaters shall be hot water combustion type, electric heating element or heat pump.

005.26A2 If only one heater is used, it shall be the fresh air type or the combination fresh air and recirculating air type.

005.26A3 If more than one hot water heater is used, additional heaters may be of recirculating air type.

005.26A4 The heating system shall be capable of maintaining bus interior temperatures as specified in Society of Automotive Engineers (SAE) test procedure J2233.

005.26A5 Optional: Auxiliary fuel-fired heating systems are permitted, provided they comply with the following:

005.26A5a The auxiliary heating system fuel shall utilize the same type fuel as specified for the vehicle engine.

005.26A5b Heater(s) may be direct hot air or connected to the engine's coolant system.

005.26A5c An auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus's heating system.

005.26A5d Auxiliary heating systems shall be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in such a manner that will endanger bus passengers.

005.26A5e The auxiliary heating system shall be low voltage.

005.26A5f Auxiliary heating systems shall comply with FMVSS No. 301, *Fuel system integrity* and all other applicable FMVSS in effect on date of manufacture, as well as SAE test procedures.

005.26A5g All combustion heaters shall be in compliance with current Federal Motor Carrier Safety Regulations.

005.26A6 All forced-air heaters installed by body manufacturers shall bear a nameplate that indicates the heater rating in accordance School Bus Manufacturer's Technical Council SBMTC-001. The plate shall be affixed by heater manufacturer and shall constitute certification that the heater performance is as shown on the plate.

005.26A7 Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or sharp edges and shall not interfere with or restrict the operation of any engine function, such as the spark advance of an automatic distributor. Heater hose shall conform to the standards of the Society of Automotive Engineers (SAE) Standard J20c *Coolant System Hoses*. Heater lines on the interior of the bus shall be shielded to prevent scalding of the driver or passengers.

005.26A8 Each hot water system installed by a body manufacturer shall include one shut-off valve in the pressure line and one shut-off valve in the return line with both valves at the engine in an accessible location, except that on all Type A and B buses the valves may be installed in another accessible location.

005.26A9 There shall be a water flow regulating valve installed in the pressure line for convenient operation by the driver while seated.

005.26A10 Accessible bleeder valves shall be installed in an appropriate place in the return lines of body company-installed heaters to remove air from the heater lines.

005.26A11 Access panels shall be provided to make heater motors, cores, and fans readily accessible for service. Outside access panel may be provided for the driver's heater.

005.26B Passenger Compartment Air Conditioning (Optional). The following specifications are applicable to all types of school buses that may be equipped with air conditioning.

005.26B1 Requirements

005.26B1a Evaporator cases, lines and ducting (as equipped) shall be designed in such a manner that all condensation is effectively drained to the exterior of the bus below the floor level under all conditions of vehicle movement and without leakage on any interior portion of the bus;

005.26B1b Evaporators and ducting systems shall be designed and installed to be free of projections or sharp edges. Ductwork shall be installed so that exposed edges face the front of the bus and do not present sharp edges;

005.26B1c On school buses equipped with Type-2 seatbelts having anchorages above the windows, the ducting (if used) shall be placed at a height sufficient to not obstruct occupant securement anchorages. This clearance shall be provided along the entire length (except at evaporator locations) of the passenger area on both sides of the bus interior;

005.26B1d The body may be equipped with insulation, including sidewalls, roof, firewall, rear, inside body bows and plywood or composite floor insulation to reduce thermal transfer;

005.26B1e All glass (windshield, service and emergency doors, side and rear windows) may be equipped with maximum integral tinting allowed by federal, state or ANSI standards for the respective locations, except that windows rear of the driver’s compartment, if tinted, shall have approximately 28 percent light transmission;

005.26B1f Electrical generating capacity shall be provided to accommodate the additional electrical demands imposed by the air conditioning system;

005.26B1g Air intake for any evaporator assembly(ies), except for front evaporator of Type A-1, shall be equipped with replaceable air filter(s) accessible without disassembly of evaporator case.

005.26B1h For all buses (except Type D rear engine transit) equipped with a rear evaporator assembly, evaporator shall not encroach upon head impact zone, but may occupy an area of less than 26.5 inches from the rear wall and 14 inches from the ceiling.

005.26B1i For Type D rear engine transit buses equipped with a rear evaporator over the davenport, the evaporator assembly may not interfere with rear exit window and may not extend above the rear seating row.

005.27 Horn. The bus shall be equipped with a horn(s) of standard make. Each horn shall be capable of producing complex sounds in bands of audio frequencies between approximately 250 and 2,000 cycles per second and tested in accordance with Society of Automotive Engineers (SAE) J-377.

005.28 Identification.

005.28A Body shall bear words "SCHOOL BUS" in black letters at least 8 inches high on both front and rear of body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Lettering shall conform to "Series B" of Standard Alphabets for Highway Signs of the Federal Highway Administration (See 23 CFR 655.601). "SCHOOL BUS" lettering shall have a reflective background or may be illuminated by backlighting. Activity buses may instead bear lettering identifying the school, school district, school mascot and/or school logos at these locations.

005.28B Required lettering and numbering is:

005.28B1 District, school, company name or owner of the bus displayed at the beltline.

005.28B2 If the bus has a district or other identification number, it shall be displayed on the sides, on the rear, and on the front.

005.28C Other lettering, numbering or symbols which may be displayed on the exterior of the bus shall be limited to:

005.28C1 Bus identification number on the top of the bus (minimum 12-inch high characters), in addition to required numbering on the sides, rear and front.

005.28C2 The location of the battery(ies) identified by the word “BATTERY” or “BATTERIES” on the battery compartment door in two-inch lettering;

005.28C3 Symbols or letters not to exceed 64 square inches of total display within 36 inches of the service door, displaying information for identification by the pupils of the bus or route served.

005.28C4 Manufacturer, dealer or school identification or mascots/logos;

005.28C5 Symbols identifying the bus as equipped for or transporting pupils with special needs;

005.28C6 Lettering on the rear of the bus relating to school bus flashing signal lamps or electronic warning signs and railroad stop procedures

005.28C7 Identification of fuel type in one-inch lettering adjacent to the fuel filler opening.

005.29 Instruments and Instrument Panel.

005.29A Chassis shall be equipped with the instruments and gauges listed below (lights in lieu of gauges are not acceptable):

005.29A1 Speedometer.

005.29A2 Odometer which will give accrued mileage, (to seven digits) including tenths of miles.

005.29A3 Voltmeter: An ammeter with graduated charge and discharge indications, is permitted in lieu of voltmeter; however, when used, the ammeter wiring must be compatible with the current flow of the system. (Exempt from Type A Bus.)

005.29A4 Oil-pressure gauge.

005.29A5 Water-temperature indicator.

005.29A6 Fuel gauge.

005.29A7 High-beam headlamp indicator.

005.29A8 Brake Air Pressure Gauge (air brakes): Brake indicator lamp (vacuum/hydraulic brakes) or brake indicator lamp (hydraulic/hydraulic).

005.29A9 Turn signal Indicator.

005.29A10 Tachometer. For Types B, C and D buses, a tachometer shall be installed to be visible to the driver while seated in a normal driving position. (Exempt from Type A Buses.)

005.29A11 Glow-plug indicator light where appropriate.

005.29B All instruments shall be easily accessible for maintenance and repair.

005.29C The instruments and gauges shall be mounted on instrument panel in such manner that each is clearly visible to driver in normal driving position.

005.29D Instruments and controls must be illuminated as required by FMVSS No. 101, *Controls and Displays.*

005.29E Multi-Function Gauge (MFG).

005.29E1 The driver must be able to manually select any displayable function of the gauge on a MFG whenever desired.

005.29E2 Whenever an out-of-limits condition that would be displayed on one or more functions of a MFG occurs, the MFG controller shall automatically display this condition on the instrument cluster. This shall be in the form of an illuminated telltale warning lamp as well as having the MFG automatically display the out-of-limits indications. If two or more functions displayed on the MFG go out of limits simultaneously, then the MFG shall sequence automatically between those functions continuously until the condition(s) are corrected.

005.29E3 The use of a MFG does not relieve the need for audible warning devices, where required.

005.30 Insulation.

005.30A The school bus body shall be fully insulated in the roof and all body panels to deaden sound, reduce vibrations, and reduce the transfer of heat.

005.30B The school bus body side walls and ceilings shall be insulated with a fire resistant material of a type approved by Underwriters Laboratories Inc., and which has a thermal insulation R value of 5.5 at least equivalent to 1½ inch thickness of fiber glass in addition to the usual sprayed-on material. All insulation shall be firmly installed so that it will retain its original position.

005.30C For floor insulation, see subsection 005.12B of this Chapter.

005.31 Interior.

005.31A Interior of school bus body shall have steel or equivalent strength material, inner linings on ceilings and walls and be free of all unnecessary projections, which includes luggage racks and attendant hand rails, to minimize the potential for injury. This standard requires inner lining on ceilings and walls. If ceiling is constructed to contain lapped joints, forward panel shall be lapped by rear panel and exposed edges shall be beaded, hemmed, flanged, or otherwise treated to minimize sharp edges.

005.31B The driver's area forward of the foremost padded barriers will permit the mounting of required emergency equipment and vehicle operation equipment.

005.31C Every school bus shall be constructed so that the noise level taken at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA when tested according to the procedure found in Appendix E of this Chapter.

005.31D Interior overhead storage compartments may be provided if they meet the following criteria:

005.31D1 Head protection requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*, where applicable.

005.31D2 Be completely enclosed and equipped with latching door (both door and latch sufficient to withstand a pushing force of 50 pounds applied at the inside center of the door.

005.31D3 All corners and edges are rounded with a minimum radius of one inch or be padded equivalent to door header padding.

005.31D4 Compartments are attached to the bus sufficiently to withstand a force equal to 20 times the maximum rated capacity of the compartment and do not have protrusions greater than ¼ inch.

005.32 Lamps and Signals.

005.32A Interior lamps shall be provided which adequately illuminate aisle and stepwell. Stepwell light shall be illuminated by a service door operated switch, to illuminate only when headlights and clearance lights are on and service door is open.

005.32B Body instrument panel lights shall be controlled by an independent rheostat switch or may be controlled by the rheostat that operates the gauge lighting.

005.32C School Bus Alternately Flashing Signal Lamps. (Activity buses are exempt.)

005.32C1 Bus shall be equipped with two (2) red lamps at the rear of vehicle and two (2) red lamps at the front of the vehicle.

005.32C2 In addition to the four red lamps described above, four (4) amber lamps shall be installed so that one (1) amber lamp is located near each red signal lamp, at same level, but closer to vertical centerline of bus. The system of red and amber signal lamps shall be wired so that the amber lamps are energized manually. The red lamps are automatically energized (with amber lamps being automatically de-energized) when stop signal arm is extended or when bus service door is opened. An amber pilot light and a red pilot light shall be installed adjacent to the driver controls for the flashing signal lamp to indicate to the driver which lamp system is activated.

005.32C3 Red lamps shall flash at any time the stop signal arm is extended.

005.32C4 All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

005.32D Turn Signal and Stop/Tail Lamps.

005.32D1 Bus body shall be equipped with amber rear turn signal lamps that are at least seven (7) inches in diameter or if a shape other than round, a minimum 38 square inches of illuminated area and meet FMVSS No. 108, *Lamps, Reflective Devices, and Associated Equipment*. These signals must be connected to the chassis hazard warning switch to cause simultaneous flashing of turn signal lamps when needed as vehicular traffic hazard warning. Turn signal lamps are to be placed so that their centerline shall be a maximum of twelve (12) inches below the rear window.

005.32D2 Buses shall be equipped with amber side-mounted turn signal lights. The turn signal light on the left side shall be mounted rearward of the stop signal arm and the turn signal on the right side shall be mounted rearward of the service door.

005.32D3 Buses shall be equipped with four (4) combination red stop/tail lamps:

005.32D3a Two (2) combination lamps with a minimum diameter of seven (7) inches, or if a shape other than round, a minimum 38 square inches of illuminated area shall be mounted on the rear of the bus just inside the turn signals.

005.32D3b Two (2) combination lamps with a minimum diameter of four (4) inches, or if a shape other than round, a minimum 12 square inches of illuminated area shall be placed on the rear of the body between the beltline and the floor line. Rear license plate lamp may be combined with one lower tail lamp. Stop lamps shall be activated by the service brakes and shall emit a steady light when illuminated.

005.32D3c On buses equipped with a monitor for the front and rear lamps of the school bus, the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected by a fuse or circuit breaker, or an electronic protection device, against any short circuit or intermittent shorts.

005.32D3d The bus body shall be equipped with two (2) white rear backup lamps that are at least four (4) inches in diameter or, if a shape other than round, a minimum of 12 square inches of

illuminated area and shall meet FMVSS No. 108, *Lamps, Reflective Devices and Associated Equipment*. If backup lamps are placed on the same horizontal line as the brake lamps and turn signal lamps, they shall be to the inside.

005.32E Clearance-Marker and Identification Lamps.

005.32E1 The body shall be equipped with two (2) red clearance lights at the rear and two (2) amber clearance lights at the front mounted as high as possible on permanent structure of bus in such a manner as to indicate extreme width of body.

005.32E2 All buses over 30 feet long shall be equipped with one (1) amber intermediate side marker light on each side located midway between the front and rear clearance lights.

005.32E3 The bus shall be equipped with three (3) amber identification lights on the front and three (3) red identification lights on the rear. Each individual light within such group or cluster shall be evenly spaced not less than six (6) inches nor more than 12 inches apart along a horizontal line near the top roof edge of the vehicle.

005.32F A white flashing strobe light shall be installed on the roof of a school or activity bus, not to exceed 1/3 the body length forward from the rear of the roof edge. The light shall have a single clear lens emitting light 360 degrees around its vertical axis. A manual switch and a pilot light shall be included to indicate when light is in operation.

005.32G Backup Lamps. Bus body shall be equipped with two (2) white rear backup lamp signals that are at least four (4) inches diameter or, if a shape other than round, a minimum of 13 square inches of illuminated area, meeting FMVSS 108, *Lamps, Reflective Devices, and Associated Equipment*. If backup lamps are placed on the same line as the brake lights and turn signals, they shall be to the inside.

005.32H Reflex Reflectors.

005.32H1 The bus shall be equipped with two (2) amber reflectors: One on each side of body located approximately at floor level and back of the door on the right side and at a similar forward position on the left side.

005.32H2 The bus shall be equipped with four (4) red reflectors: One (1) on each side as far to the rear as possible and two (2) on the rear as far apart as practicable.

005.32H3 All buses over 30 feet long shall be equipped with additional intermediate amber reflectors which shall be located at or near the midpoint between the front and rear side reflector.

005.32H4 The reflectors are to be mounted at a height of not less than 15 inches nor more than 60 inches above the ground on which the vehicle stands.

005.32I License Plate Lamp. Bus shall be equipped with rear license plate illuminator. This lamp may be combined with one (1) of tail lamps.

005.32J Daytime Running Lamps (DRL). A Daytime Running Lamps system shall be provided.

005.33 Metal Treatment.

005.33A All metal used in construction of bus body shall be zinc or aluminum coated or treated by equivalent process before bus is constructed. This includes, but is not limited to such items as structural members, inside and outside panels, floor panels, and floor sills. Excluded are such items as door handles, grab handles, stanchions, interior decorative parts, and other interior plated parts.

005.33B All metal parts that will be painted shall be (in addition to above requirements) chemically cleaned, etched, zinc-phosphate coated, and zinc-chromate or epoxy-primed or conditioned by equivalent process.

005.33C In providing for these requirements, particular attention shall be given to lapped surfaces, welded connections or structural members, cut edges, punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas, and surfaces subjected to abrasion during vehicle operation.

005.34 Mirrors.

005.34A Interior mirror shall be either clear view laminated glass or clear view glass bonded to a backing which retains the glass in the event of breakage. Mirror shall have rounded corners and protected edges. All Type A buses shall have a minimum of a 6" x 16" mirror and Type B, C, and D buses shall have a minimum of a 6" x 30" mirror.

005.34B Each bus shall be equipped with a system of exterior mirrors meeting the requirements of FMVSS No.111*, Rearview Mirrors.* The right side rear view mirror shall not be obscured by the unwiped portion of the windshield.

005.34C This system of mirrors shall be easily adjustable, but be rigidly braced so as to reduce vibration.

005.34D Heated external mirrors may be used. Remote controlled external rear view mirrors may be used.

005.35 Mounting.

005.35A Chassis frame shall support the rear body cross member. Bus body shall be attached to chassis frame at each main floor sill, except where chassis components interfere, in such manner as to prevent shifting or separation of body from chassis under severe operating conditions.

005.35B Insulating material shall be installed at all contact points between the body and chassis frame on Type A-2, B, C and D buses, and shall be secured to chassis frame or body to prevent shifting, separation, or displacement of the isolators under severe operating conditions.

005.36 Oil Filter. An oil filter with a replaceable element shall be provided and connected by flexible oil lines if it is not a built-in or an engine-mounted design. Oil filter shall have a capacity in accordance with the engine manufacturer's recommendations.

005.37 Openings. All openings in floorboard or firewall between chassis and passenger carrying compartment, such as for gearshift lever and auxiliary brake lever, shall be sealed.

005.38 Passenger Load.

005.38A Actual Gross Vehicle Weight (GVW) is the sum of the chassis weight, plus the driver's weight, plus total seated pupil weight. For purposes of calculation, the driver's weight is 150 pounds, and the student weight is 20 pounds per student.

005.38B Actual gross vehicle weight (GVW) shall not exceed the chassis manufacturer's gross vehicle weight rating (GVWR) for the chassis, nor shall the actual weight carried on any axle exceed the chassis manufacturer's Gross Axle Weight Rating (GAWR).

005.39 Retarder System. Retarder system, if used, shall limit the speed of the fully loaded school bus at 19.0 mph on a 7% grade for 3.6 miles.

005.40 Rub Rails.

005.40A There shall be one (1) rub rail located on each side of the bus approximately at seat level or no more than eight (8) inches above the seat cushion level. They shall extend from rear side of the entrance door completely around bus body (except for emergency door or any maintenance access door) to a point of curvature near outside cowl on the left side.

005.40B There shall be one (1) additional rub rail located on each side at, or no more than ten (10) inches above the floor line. The rub rail shall cover the same longitudinal area as upper rub rail, except at the wheel housings, and shall extend only to the longitudinal tangent of right and left rear corners.

005.40C There shall be a rub rail or equivalent bracing located horizontally at the bottom of the side skirts.

005.40D Rub rails above the floor line shall be attached at each body post and all other upright structural members.

005.40E Rub rails shall be four (4) inches or more in width, shall be of 16 gauge steel, or equivalent strength material, and shall be constructed in corrugated or ribbed fashion.

005.40F Both rub rails shall be applied outside the body or outside the body posts. Pressed-in or snap-on rub rails do not satisfy this requirement.

005.40F1 For Type A-1 buses using the body provided by the chassis manufacturer or for Types A-2, B, C, and D buses using the rear luggage or the rear engine compartment, rub rails need not extend around the rear corners.

005.41 Seat Belts/Occupant Protection Systems.

005.41A A Type 2 lap belt/shoulder harness seat belt shall be provided for the driver and must meet FMVSS in effect on date of manufacture.

005.41A1 In addition, the assembly shall be equipped with an emergency locking retractor for the continuous belt system. On all buses except Type A equipped with standard chassis manufacturer's driver's seat, the lap portion of the belt shall be guided or anchored so as to prevent the driver from sliding sideways under it.

005.41A2 Each bus shall be equipped with a durable webbing cutter (belt cutter) having a full width handgrip and a protected, replaceable or non-corrodible blade. The belt cutter shall be mounted in a location accessible to the seated driver in an easily detachable manner.

005.41B Type A buses shall have seat belts/occupant protection systems for all passengers and shall comply with FMVSS in effect on date of manufacture. In Type A buses, children shall be required to use child passenger restraint systems or occupant protection systems as required by Section 60-6,267 R.R.S.

005.42 Seats and Restraining Barriers.

005.42A All seats shall have a minimum depth of 15 inches, a seat back height of 24 inches above the seating reference point, and must comply with all requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*. School bus design capacities shall be in accordance with 49 CFR, Part 571.3 and FMVSS No. 222.

005.42A1 Each seat leg shall be secured to the floor by bolts, washers and nuts in order to meet the performance requirements of FMVSS No. 222. Flange-head nuts may be used in lieu of nuts and washers, or seats may be track-mounted in conformance with FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*. If track seating is installed, the manufacturer shall supply minimum and maximum seat spacing dimensions applicable to the bus, which comply with FMVSS No. 222. This information shall be on a label permanently affixed to the bus.

005.42A2 All seat frames shall be fastened to the seat rail with a minimum of two (2) bolts, washers and nuts or flange-headed nuts in conformance with FMVSS No. 222.

005.42A3 No bus shall be equipped with jump seats, portable seats, or other auxiliary seating.

005.42A4 All restraining barriers, upholstered areas, driver and passenger seats, including seat bottom, shall be covered with a material that meets the criteria contained in the School Bus Seat Upholstery Fire Block Test. (See Appendix D of this Chapter.)

005.42A5 Seat belts/occupant protection systems installed by retrofits must be installed on seats that meet FMVSS No. 222.

005.42A6 All school buses (including Type A) shall be equipped with restraining barriers which conform to FMVSS No. 222.

005.42B The driver's seat supplied by the body company shall be a high back seat with a head restraint to accommodate a 95th percentile adult male, as defined in FMVSS No. 208*, Occupant Crash Protection,* and with a minimum seat back adjustable to 15 degrees. The driver's seat shall be secured with nuts, bolts, and washers or flanged-head nuts.

005.42B1 Type A buses may utilize the standard driver's seat provided by the chassis manufacturer.

005.42B2 A Type 2 lap belt/shoulder harness seat belt shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor for the continuous belt system. On all buses except Type A equipped with a standard chassis manufacturer's driver's seat, the lap portion of the belt system shall be guided or anchored to prevent the driver from sliding sideways under it. The lap belt/shoulder harness seat belt shall be designed to allow for adjustment in order to fit and to protect drivers varying in size from 5th percentile adult female to 95th percentile adult male.

005.42B3 Pre-School Age Seating on School Buses. Passenger seats designed to accommodate a child or infant carrier seat shall comply with FMVSS No. 225, *Child Restraint Anchorage Systems*. These seats shall be in compliance with NHTSA's "Guideline for the Safe Transportation of Pre-school Age Children in School Buses."

005.43 Seat Barrier. The right hand seat barrier shall include a modesty panel from barrier to floor and comply with Federal Motor Vehicle Safety Standards in effect on date of manufacture.

005.44 Shock Absorbers. A bus shall be equipped with double-acting shock absorbers compatible with manufacturer's rated axle capacity at each wheel location.

005.45 Springs and Suspension Systems.

005.45A The capacity of springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.

005.45B Rear leaf springs shall be of a progressive rate or multi-stage design. Front Leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf.

005.46 Steering Gear.

005.46A The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when vehicle is operated with maximum load and at maximum speed.

005.46B If external adjustments are required, steering mechanism shall be accessible to make adjustments.

005.46C No changes shall be made in steering apparatus which are not approved by chassis manufacturer.

005.46D There shall be clearance of at least two (2) inches between steering wheel and cowl, instrument panel, windshield, or any other surface.

005.46E Power steering is required and shall be of the integral type with integral valves.
005.46F The steering system shall be designed to provide a means for lubrication of all wear-points which are not permanently lubricated.

005.47 Steps.

005.47A First step at service door shall be not less than 10 inches and not more than 14 inches from ground, based on standard chassis specifications. Type D buses shall have the first step at the service door 12 inches to 16 inches from the ground. On chassis modifications which may result in increased ground clearance (such as four-wheel drive) an auxiliary step may be provided

to compensate for the increase in ground-to-first-step clearance. The auxiliary step is not required to be enclosed.

005.47B Step risers shall not exceed a height of 10 inches, however, with plywood floor on steel, the differential may be increased by thickness of plywood used.

005.47C Steps shall be enclosed to prevent accumulation of ice and snow.

005.47D Steps shall not protrude beyond side body line.

005.47E At least one (1) handrail shall be installed in accordance with subsection 005.25.

005.47F All steps, including floor line platform area, shall be covered with 3/16 inch rubber floor covering or other material equal in wear and abrasion resistance to top grade rubber.

005.47G The step covering shall be permanently bonded to a durable backing material that is resistant to corrosion.

005.47H Steps, including the floor line platform area, shall have a 1 ½" nosing that contrasts in color by at least 70 percent measured in accordance with the contrasting color specifications in 36 CFR, Part 1192 Americans with Disabilities Act regulations (ADA), Accessibility Guidelines for Transportation Vehicles.

005.47I Step treads shall have the following characteristics:

005.47I1 Abrasion resistance: Step tread material weight loss shall not exceed .40 percent, as tested under ASTM D-4060, *Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.*

005.47I2 Weathering resistance: Step treads shall not break, crack, or check after ozone exposure (7 days at 40 phm at 40 degrees C) and weatherometer exposure (*ASTM D=750 Standard Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus,* 7 days).

005.47I3 Flame resistance: Step tread shall have a calculated burn rate of .01 or less using the test methods, procedures and formulas listed in FMVSS No. 302, *Flammability of Interior Materials*.

005.48 Stirrup Steps. There may be one or more folding stirrup steps or recessed foothold and suitably located handles on each side of the front of the body for easy accessibility for cleaning the windshield and lamps. Steps are permitted in or on the front bumper, in lieu of the stirrup steps, if the windshield and lamps are easily accessible for cleaning from that position.

005.49 Stop Signal Arm. The stop signal arm(s) shall comply with the requirements of FMVSS No. 131, *School Bus Pedestrian Safety Devices*. (Activity buses are exempt.)

005.50 Storage Compartment. A storage container for tools, tire chains, and/or tow chains may be located either inside or outside the passenger compartment. If inside, it shall have a cover capable of being securely latched and fastened to the floor. (The seat cushion may not serve this purpose.)

005.51 Sun Shield.

005.51A On Type B, C and D buses, an interior transparent, adjustable, sun shield shall be installed that is not less than 6 inches wide and 30 inches long with a finished edge.

005.51B On Type A buses, the sun shield shall be installed according to the manufacturer's standard.

005.52 Throttle. The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.

005.53 Tires and Rims.

005.53A Tires and rims of the proper size and tires with a load rating commensurate with chassis manufacturer's gross vehicle weight rating shall be provided. The use of multipiece rims and/or tube-type tires shall not be permitted on any school bus ordered after December 31, 1995.

005.53B Dual rear tires shall be provided on Type A-2, Type B, Type C and Type D school buses.

005.53C All tires on a bus shall be of the same size. The load range of the tires shall meet or exceed the GVWR, as required by FMVSS No. 120, *Tire Selection and Rims for Motor Vehicles Other than Passenger Cars*.

005.53D If the bus is equipped with a spare tire and rim assembly, it shall be of the same size as those mounted on the bus.

005.53E Chains or snow tires shall be supplied if required by local regulation or warranted by circumstances.

005.53F If a tire carrier is utilized, it shall be mounted in an accessible location outside of the passenger compartment.

005.54 Tow Hooks. Tow eyes, hooks or other devices shall be furnished on the rear and attached so they do not project beyond the rear bumper. Tow eyes or hooks for attachment to the rear of the chassis frame shall be furnished by either the chassis or body manufacturer. The installation shall be in accordance with the chassis manufacturer’s specifications. (Type A buses are exempt.)

005.55 Traction Assisting Devices.

005.55A Where required or used, sanders shall:

005.55A1 be of hopper cartridge - valve type,

005.55A2 have metal hopper with all interior surfaces treated to prevent condensation of moisture,

005.55A3 be of at least 100 pound (grit) capacity,

005.55A4 have cover on filler opening of hopper, which screws into place, sealing unit airtight,

005.55A5 have discharge tubes extending to front of each rear wheel under fender,

005.55A6 have non-clogging discharge tubes with slush-proof, nonfreezing rubber nozzles,

005.55A7 be operated by electric switch with telltale pilot light mounted on instrument panel so as to be exclusively controlled by the driver,

005.55A8 be exclusively driver controlled,

005.55A9 have a gauge to indicate that the hopper needs refilling when it is down to one-quarter full.

005.55B Automatic traction chains may be installed.

005.56 Transmission.

005.56A Automatic transmissions shall have no fewer then three (3) forward speeds and one (1) reverse speed. Mechanical shift selectors shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering-column mounted.

005.56B In manual transmissions, second gear and higher shall be synchronized, except when incompatible with engine power. A minimum of three (3) forward speeds and one (1) reverse speed shall be provided.

005.56C A transmission shifter interlock, controlled by application of the service brake, shall be installed to prohibit accidental engagement of the automatic transmission.

005.57 Trash Container. When used, the trash container shall be secured by a holding device. It shall be installed in an accessible location in the driver's compartment, not obstructing passenger use of the service door.

005.58 Turning Radius.

005.58A Chassis with a wheel base of 264 inches or less shall have a right and left turn radius of not more than 42½ feet, curb to curb measurement.

005.58B Chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44½ feet, curb to curb measurement.

005.59 Undercoating. The chassis manufacturer or their agent shall coat the undersides of the bus from the firewall to the back of the bus. Any undercoating compound must meet or exceed all performance and qualitative requirements of SAE J1959, Sept. 2003 Edition of the Standard.

005.59A Undercoating material shall be applied with suitable airless or conventional spray equipment to recommended film thickness and shall show no evidence of voids in cured film.

005.59B The undercoating material shall not cover any exhaust components of the chassis.

005.60 Ventilation.

005.60A Body shall be equipped with suitable, controlled ventilating system of sufficient capacity to maintain proper quantity of air flow under operating conditions without opening of windows except in extremely warm weather.

005.60B Static-type non-closable exhaust roof ventilator shall be installed in low-pressure area of roof.

005.60C Roof hatches designed to provide ventilation in all types of weather conditions may be provided.

005.60D Auxiliary fans shall meet the following requirements:

005.60D1 Fans for the left and right sides shall be placed in a location where they can be adjusted to maximum effectiveness.

005.60D2 Fans shall be in a location where they do not obstruct vision to any mirror. Type A buses may be equipped with one fan.

005.60D3 These fans shall be a nominal six-inch diameter.

005.60D4 Fan blades shall be covered with a protective cage. Each fan shall be controlled by a separate switch.

005.61 Wheel Housings.

005.61A Wheel house openings shall allow for tire removal and service.

005.61B Wheel housings shall be attached to floor sheets in such manner as to prevent any dust, fumes or water from entering the body. Wheel housings shall be constructed of at least 16-guage steel.

005.61C Inside height of wheel housings above floor line shall not exceed 12 inches.

005.61D Wheel housings shall provide clearance for installation and use of tire chains on single and dual (if so equipped) power-driving wheels.

005.61E No part of a raised wheel housing shall extend into the emergency door opening.

005.62 Windows. Each full side window, other than emergency exits designated to comply with FMVSS No. 217*, Bus Emergency Exits and Window Retention and Release*, shall provide an unobstructed opening at least 9 inches high but not more than 13 inches high and at least 22 inches wide, obtained by lowering of the window. One side window on each side of the bus may be less than 22 inches wide. Windshields shall comply with federal, state, and local laws and regulations.

005.63 Windshield Washers. A windshield washer system which conforms to FMVSS Standard 104, *Windshield Wiping and Washing Systems,* shall be provided.

005.64 Windshield Wipers. A two-speed or variable speed windshield wiping system, with an intermittent feature, which meet the requirements of FMVSS No. 104*, Windshield Wiping and Washing Systems,* shall be provided and shall be operated by a single switch.

006 Small Vehicle (General) Minimum Equipment Standards.

006.01 Construction.

006.01A The small vehicle shall be of closed integral body type.

006.01B The small vehicle shall have a wheel base of 100 inches or more.

006.01C Body shall be all steel or of a metal at least equivalent in strength to steel.

006.01D Body interior such as headliner, interior door, and side panels shall be lined with a protective material.

006.02 Equipment. The small vehicle shall be equipped with:

006.02A Four-wheel brakes properly adjusted to efficiently stop vehicle when fully loaded.

006.02B Park brake adequate to hold vehicle when stopped on incline.

006.02C Two windshield wipers.

006.02D Rearview mirrors - one inside and one outside on left side, one outside on right.

006.02E Two tail lights.

006.02F Two stop lights.

006.02G Multiple beam halogen headlights (including indicator light).

006.02H Switch to raise or lower headlight beam.

006.02I Directional signals - front and rear (including indicator lights).

006.02J Adequate horn.

006.02K Interior adjustable sun shield.

006.02L Adequate heater and defroster.

006.02M Laminated safety glass in the windshield and tempered safety glass in other windows is permissible.

006.02N Seat belts/occupant protection systems for the driver and all passengers. Child passenger restraint systems shall be provided for passengers as required by Sections 60-6,266 and 60-6,267 R.R.S.

006.02O Two way electronic voice communication system which can be used at any point on the vehicle's route. This may be after market provided.

006.03 Safety Equipment.

006.03A The small vehicle shall be equipped with one (1) dry chemical type fire extinguisher with a minimum capacity of 2 ½ pounds (approved by Underwriters Laboratories, Inc.) with at least a total rating of 2A10-B:C.

006.03B The small vehicle shall be equipped with one first aid kit. (See Appendix B.)

006.03C The small vehicle shall have a removable and moisture proof body fluid clean-up kit. It shall be identified as a body fluid clean-up kit. (See Appendix C.)

006.03D The small vehicle shall carry three (3) red and orange emergency reflective triangles, in compliance with Federal Motor Vehicle Safety Standards (FMVSS) No. 125, *Warning Devices*.

006.03E Small vehicles, when used to transport handicapped children, must be equipped with support or restraining devices that meet the requirements of Federal Motor Vehicle Safety Standards (FMVSS) in effect on date of manufacture.

007 Additional Required Equipment For Vehicles Used With Mobile Seating Devices.

007.01 General Requirements. Pupil transportation vehicles designed for transporting children with special transportation needs shall comply with National School Transportation Specifications & Procedures and with Federal Motor Vehicle Safety Standards (FMVSS) applicable to their Gross Vehicle Weight Rating (GVWR) category. In addition, any pupil transportation vehicle to be used for the transportation of children who are confined to a wheelchair or other mobile positioning device, or who require life support equipment which prohibits use of the regular service entrance, shall be equipped with a power lift, unless a ramp is needed for unusual circumstances related to passenger needs.

007.02 Emergency Exit. All school and activity buses equipped with a power lift shall provide a 30-inch aisle leading from any wheelchair/mobility aid position to at least one emergency door. A wheelchair securement position shall never be located directly in front of a power lift door location. When provided, the lift service door is considered an emergency exit.

007.03 Communications. All pupil transportation vehicles which are used to transport individuals with disabilities shall be equipped with a two way electronic voice communication system which can be used at any point in the vehicles' route. This system may be after market provided.

007.04 Glazing. Tinted glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.

007.05 Identification. Vehicles with power lifts used for transporting individuals with disabilities shall display the International Symbol of Accessibility below the window line. Such emblems shall be white on blue background, shall not exceed 12 inches in size, and shall be of a high-intensity reflectorized material meeting Federal Highway Administration (FHWA) FP-85 Standards.

007.06 Passenger Capacity Rating. In determining the passenger capacity of a school transportation vehicle for purposes other than actual passenger load (i.e., vehicle classification, or various billing/reimbursement models), any location in a vehicle intended for securement of an occupied wheelchair/mobility aid during vehicle operations may be regarded as four designated seating positions. Similarly, each lift area may be regarded as four designated seating positions. (Small vehicles are exempt.) (See Appendix J for Wheelchair or Mobility and Envelope diagram.)

007.07 Power Lifts and Ramps. On all vehicles other than small vehicles, power lift shall be located on the right side of the vehicle body when not extended. The lift may be located on the left side of the bus if used to deliver individuals to the left side of one way streets.

007.07A All vehicles covered by this specification shall provide a level-change mechanism or boarding device (e.g., lift or ramp) which comply with the requirements set forth in FMVSS 403, *Platform Lift Systems for Motor Vehicles*, and FMVSS 404, *Platform Lift Installations in Motor Vehicles*.

007.07B Vehicle Lift. The design load of the lift shall be at least 800 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Nonworking parts, such as platform, frame, and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

007.07C Lift Capacity. The lifting mechanism and platform shall be able to operate effectively with a wheelchair and occupant mass of at least 800 pounds.

007.07D Lift Controls. (See 49 CFR 571.402, S6.7, *Control Systems)*

007.07E Emergency Operation. (See 49 CFR 571.403, S6.9, *Backup Operation*)

007.07F Power or Equipment Failure. (See 49 CFR 571.403, S6.2.2 *Maximum Platform Velocity*).

007.07G Platform Barriers.(See 49 CFR 571.403, S6.4.7, *Wheelchair Retention*).

007.07H Platform Surface. (See 49 CFR 571.403,, S6.4.2, S6.4.3, *Platform Requirements*).

007.07I Platform Gaps. (See 49 CFR 571.403, S6.4.4, *Gaps, Transitions and Openings*).

007.07J Platform Deflection. (See 49 CFR 571.403, S6.4.5, *Platform Deflection*).

007.07K Platform Movement. (See 49 CFR 571.403,S6.4.5 *Maximum Platform Acceleration*).

007.07L Boarding Direction. The lift shall permit both inboard and outboard facing of wheelchair and mobility aid users.

007.07M Use by Standees. Lifts shall be capable of accommodating persons using walkers, crutches, cane or braces, or who otherwise have difficulty using steps. The platform may be marked to indicate a preferred standing position.

007.07N Handrails. (See 49 CFR 571.403, S6.4.9, *Handrails*).

007.07O Circuit Breaker. A resetable circuit breaker shall be installed between power source and lift motor if electrical power is used. It shall be located as close to the power source as possible, but not within the passenger/driver compartment.

007.07P Excessive Pressure. (See 49 CFR 571.403, S6.8, *Jacking Prevention*).

007.07Q Documentation. The following information shall be provided with each vehicle equipped with a lift.

007.07Q1 A phone number where information can be obtained about installation, repair, and parts. (Detailed written instructions and a parts list shall be available upon request.)

007.07Q2 Detailed instructions regarding use of the lift are readily visible when the lift door is open, including a diagram showing the proper placement and positioning of wheelchair/mobility aids on lift.

007.07R Training Materials. The lift manufacturer shall make available training materials to ensure the proper use and maintenance of the lift. These may include instructional videos, classroom curriculum, system test results, or other related materials.

007.07S Identification and Certification. Each lift shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable requirements of the National School Transportation Specifications & Procedures. In addition, the lift manufacturer, or an authorized representative, upon request of the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photo copied, which states that the lift system meets all the applicable requirements of the National School Transportation Specifications & Procedures.

007.07T Vehicle Ramp.

007.07T1 If a ramp is used, it shall be of sufficient strength and rigidity to support the special device, occupant, and attendant(s). It shall be equipped with a protective flange on each longitudinal side to keep special device on the ramp.

007.07T2 Floor of ramp shall be of non-skid material.

007.07T3 Ramp shall be equipped with handles and be of weight and design to permit one (1) person to put ramp in place and return it to its storage place.

007.07T4 Ramps installed in raised floor buses by manufacturers may be used for emergency evacuation purposes. They shall not be used as a substitute for a lift when a lift is capable of servicing the need.

007.08 Regular Service Entrance.

007.08A On power-lift equipped vehicles, step shall be the full width of the step well, excluding the thickness of doors in open position.

007.08B A device shall be provided to assist passengers during entry or exit. This device shall allow for easy grasping or holding and shall have no openings or pinch points which might entangle clothing, accessories or limbs.

007.08C An additional handrail may be provided on all specially equipped school buses. This handrail shall be located on the opposite side of the entrance door from the handrail required in subsection 005.25 of this Chapter and shall meet the same requirements for handrails.

007.09 Restraining Devices.

007.09A On power-lift equipped vehicles with a GVWR of 10,000 pounds or more, seat frames may be equipped with attachments or devices to which belts, restraining harnesses or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform to FMVSS No. 210, *Seat Belt Assembly Anchorages*. Any belt assembly anchorage shall comply with FMVSS No 210, *Seat Belt Assembly Anchorages.*

008.09B Seat belt assemblies, if installed, shall conform to FMVSS No. 209, *Seat Belt Assemblies*.

007.09C Child restraint systems, which are used to facilitate the transportation of children who in other modes of transportation would be required to use a child, infant, or booster seat, shall conform to FMVSS No. 213, *Child Restraint Systems*.

007.10 Seating Arrangements. Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall meet the requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection.*

007.11 Securement and Restraint System for Wheelchair/Mobility Aid and Occupant. For purposes of better understanding the various aspects and components of this section, the term “securement and tiedown” and the phrases “securement system” or “tiedown system” are used exclusively in reference to the device(s) which anchor the wheelchair to the vehicle. The term “restraint” or the phrase “restraint system” are used exclusively in reference to the equipment that is intended to limit the movement of the wheelchair occupant in a crash or sudden maneuver. The term “wheelchair tiedown” and “occupant restraint system” (WTORS) is used to refer to the total system that secures the wheelchair and restrains the wheelchair occupant.

007.11A Wheelchair Tiedown and Occupant Restraint System (WTORS) general requirements:

007.11A1 A wheelchair and occupant restraint system installed in specially equipped school buses shall be designed, installed, and operated for use with forward-facing wheelchair-seated passengers and shall comply with applicable requirements of FMVSS 222, *School Bus Passenger Seating and Crash Protection*, and SAE J2249, *Wheelchair Tie down and Occupant Restraint Systems for Use in Motor Vehicles*.

007.11A2 The WTORS, including the anchorage track, floor plates, pockets or other anchorages, shall be provided by the same manufacturer or shall be certified to be compatible by manufacturers of all equipment/systems used.

007.11A3 Wheelchair securement positions shall be located such that wheelchairs and their occupants do not block access to the lift door.

007.11A4 A device for storage of the WTORS shall be provided. When the system is not in use, the storage device shall allow for clean storage of the system, shall keep the system securely contained within the passenger compartment, shall provide reasonable protection from vandalism, and shall enable the system to be readily accessed for use.

007.11A5 The WTORS, including the storage device, shall meet the flammability standards established in FMVSS No. 302, *Flammability of Interior Materials*.

007.11A6 The following information shall be provided with each vehicle equipped with a securement and restraint system:

007.11A6a A phone number where information can be obtained about installation, repair and parts.

007.11A6b Detailed instructions regarding use, including a diagram showing the proper placement of the wheelchair/mobility aids and positioning of securement devices and occupant restraints, including correct belt angles.

007.11A7 Wheelchair Securement/Tiedown (See 49 CFR 571.403, S5.4.3, S5.4.4). Each wheelchair position in a specially equipped school bus shall have a minimum clear floor area of 30 inches laterally by 48 inches longitudinally. Additional floor area may be required for some wheelchairs. Consultation between the user and the manufacturer is recommended to ensure that adequate area is provided.

007.11A8 Occupant restraint system (See 49 CFR 571.403, S5.4.3, S5.4.4). If the upper torso belt anchorage is higher than 44 inches measured from the vehicle floor, an adjustment device, as part of the occupant restraint system, shall be supplied.

007.12 Special Light. Doorways in which lifts are installed, shall have, when lift is to be used, at least 2 foot-candles of illumination measured on the floor of the vehicle immediately adjacent to the lift, and on the lift, when deployed at the vehicle floor level.

007.13 Special Service Entrance.

007.13A Power lift equipped bodies shall have a special service entrance to accommodate the power lift.

Exception: If the lift is designed to operate within the regular service entrance, and is capable of stowing such that the regular service entrance is not blocked in any way, and that persons entering or exiting the vehicle are not impeded in any way, a special service entrance shall not be required.

007.13B The special service entrance and door shall be located on the right side of the vehicle and shall be designed so as not to obstruct the regular service entrance. (Small vehicles are exempt.)

Exception: A special service entrance and door may be located on the left side of the vehicle only if the vehicle is primarily used to deliver children to the left side of one way streets and its use is limited to that function.

007.13C The opening may extend below the door through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor and give the same strength as other floor openings.

007.13D A drip molding shall be installed above the opening to effectively direct water from entrance.

007.13E Door posts and headers from entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for special service entrance.

007.14 Special Service Entrance Doors.

007.14A A single door or double doors may be used for the special service entrance.

007.14B A single door shall be hinged to the forward side of the entrance unless doing so would obstruct the regular service entrance. If, due to the above condition, the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism which will prevent the door from swinging open should the primary door latch fail. If double doors are used, the system shall be designed to prevent the door(s) from being blown open by aerodynamic forces created by the forward motion of the bus, and/or shall incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.

007.14C All doors shall have positive fastening devices to hold doors in the open position.

007.14D All doors shall be weather sealed.

007.14E When manually-operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three one-point fastening devices. One shall be to the header, one to the floor line of the body, and the other shall be into the rear door. The door and hinge mechanism shall be of a strength that is greater than or equivalent to the strength of the emergency exit door.

007.14F Door materials, panels and structural strength shall be equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.

007.14G Each door shall have windows set in a waterproof manner that is visually similar in size and location to adjacent non-door windows. Glazing shall be of same type and tinting (if applicable) as standard fixed glass in other body locations.

007.14H Door(s) shall be equipped with a device that will actuate an audible or flashing signal located in the driver's compartment when door(s) is/are not securely closed and ignition is in "on" position.

007.14I A switch shall be installed so that the lifting mechanism will not operate when the lift platform door(s) is/are closed.

007.14J Special service entrance doors shall be equipped with padding at the top edge of the door opening. Pad shall be at least three inches wide and one inch thick and extend the full width of the door opening.

007.15 Support Equipment and Accessories.

007.15A In addition to the webbing cutter required in Section 005.41A2, each specially equipped vehicle which is set up to accommodate wheelchair/mobility aids or other assistive or restraint devices which utilize belts, shall contain at least one (1) belt cutter properly secured in a location within reach of the driver while belted into his/her driver's seat. The belt cutter shall meet the requirements of subsection 005.41A2 of this Chapter.

007.15B Special equipment or supplies which are used on the bus for mobility assistance, health support, or safety purposes shall meet any local, federal, or engineering standards which may apply, including requirements for proper identification. Equipment which may be used for these purposes includes, but is not limited to:

007.15B1 Wheelchairs and other mobile seating devices.

007.15B2 Crutches, walkers, canes, and other ambulating devices.

007.15B3 Medical Support Equipment. This may include respiratory devices such as oxygen bottles (which should be no larger than 22 cubic feet for liquid oxygen and 38 cubic feet for compressed gas), or ventilators. Tanks and valves should be located and positioned to protect them from direct sunlight, bus heater vents, or other heat sources. Other equipment may include intravenous, and fluid drainage apparatus.

007.15C All portable equipment and special accessory items including equipment in subsection 007.15B, shall be secured at the mounting location to withstand a pulling force of five times the weight of the item, or shall be retained in an enclosed, latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure to the box's integrity and securement to the bus. Exception: If these standards provide specific requirements for securement of a particular type of equipment, the specific standard shall prevail (i.e., wheelchairs).

008 Safety Inspection Process for Pupil Transportation Vehicles.

008.01 Schools shall inspect and assure that pupil transportation vehicles meet the minimum allowable safety criteria pursuant to Section 79-602 R.R.S.

008.01A All pupil transportation vehicles used for the transportation of pupils shall be inspected before school opens in the fall and each eighty days during the time period school is in session. Any item not meeting such criteria shall be brought into compliance prior to the vehicle being used to transport pupils.

008.01A1 Inspections shall be conducted by a motor vehicle mechanic appointed by the school board or governing authority.

008.01A2 A mechanic’s inspection report for each vehicle shall be on file with the school. (See Appendix I)

008.01A3 The chief administrative officer of each school district shall annually certify to the Department of Education that inspections pursuant to Section 79-602 R.R.S. have been performed.

009 Minimum Safety Inspection Criteria for School and Activity Buses.

009.01 The minimum inspection standards for school buses are detailed in Appendix H. These criteria are not intended to replace, modify, or alter the vehicle manufacturer’s recommended preventative maintenance schedule. These inspections are to be performed as required by Section 79-602 R.R.S. (See Section 008.01).

010 Minimum Safety Inspection Criteria for Small Vehicles.

010.01 Body interior shall be lined with upholstered material on head liner, door, and side panels.

010.02 Brakes shall be four-wheel brakes properly adjusted.

010.03 Parking brake shall be capable of holding the vehicle on an incline.

010.04 Two (2) windshield wipers shall be provided and operable.

010.05 Three (3) mirrors (two exterior and one interior) shall be provided and they shall not be cracked or broken.

010.06 Tail lights, stop lights, headlights, and directional signals shall be provided and operable with no broken or cracked lenses.

010.07 A horn shall be provided and operable.

010.08 A sunshield shall be provided for the driver and be operable.

010.09 Heater/defroster shall be provided and be operable.

010.10 Unbroken and uncracked safety glass shall be in all windows.

010.11 Seat belts and child passenger restraint systems for driver and all passengers shall be provided as required by Sections 60-6,265 through 60-6,267 R.R.S.

010.12 One (1) fire extinguisher shall be provided. It shall be a dry chemical type of 2 ½ pounds, size approved by Underwriters Laboratories, Inc., with a total rating of 1A10-B:C.

010.13 One (1) first aid kit shall be provided which includes the items as listed in Appendix B of this Chapter.

010.14 Body Fluid Clean-up Kit shall be provided and contain the items as listed in Appendix C of this Chapter.

010.15 Emergency reflective triangles shall be provided.

011 Minimum Safety Inspection Criteria for Vehicles for Transporting Children In Mobile Seating Devices.

011.01 Vehicles must generally comply with minimum standards and inspection criteria established for school buses and small vehicles, but with the modifications as listed below:

011.01A Special service entrance doors, and positive fastening devices that function properly and a red flashing signal that functions properly.

011.01B A power lift that is covered with non-skid materials. (Exception - a ramp may be substituted.)

011.01C A steel ramp provided with a restraining device to prohibit mobile device from rolling off platform.

011.01D Fastening devices for mobile devices that attach securely to floor or walls.

011.01E Restraining devices shall be provided.

011.01F A light inside the vehicle which functions properly.

011.01G Grab handles shall be provided that are installed properly.

011.01H Restraining devices for handicapped transport shall be available that meet FMVSS 213*, Hood Latch System*.

011.02 Wheelchair lift shall function as designed and is operable.

011.03 Platform lift manufactured after 4/1/05 must meet all of the following criteria:

011.03A Jacking prevention;

011.03B Manual Backup operating mode;

011.03C Interlocks to prevent forward or rearward mobility of the vehicle unless lift is stowed;

011.03D Wheelchair retention device;

011.03E Platform outer barrier and inner roll stop.

011.04 No hydraulic lines shall be leaking during lift operation.

011.05 Wheelchair restraint system shall be complete and properly installed. No loose or damaged parts shall be in use.

011.06 All required wheelchair occupant restraint systems shall be in compliance with FMVSS 571.222.

APPENDIX A - DESCRIPTION OF NATIONAL SCHOOL BUS YELLOW

The color known as National School Bus Yellow was designated as such by the 1939 National Conference on School Bus Standards. The National Bureau of Standards of the U.S. Department of Commerce assisted in developing this color and its color metric specifications.

At the 1980 conference, the colors in use were reviewed. A color standard was selected, slightly different from above, and specific tolerances were chosen. These tolerances will ensure a continuity of appearance from bus to bus, and within the same bus when different elements are finished or refinished at different times.

When it was determined that the use of lead and chromium in paint was a health hazard, the National Bureau of Standards of the U.S. Department of Commerce assisted the S.B.M.I. in developing their color standard No. SBMI-008, which further defined the tolerances to permit better definition of the color. Specifications for the standard color, with light and dark tolerances are shown below in tabular form.

COLORMETRIC (CIE) DATA

DESCRIPTION	REFLECTANCE Y	CHROMATICITY X	Y
Centroid	40.2%	.4882	.4205
Light Limit	41.8%	.4882	.4198
Dark Limit	38.5%	.4902	.4206
Green Limit	40.6%	.4844	.4217
Red Limit	40.3%	.4907	.4174
Vivid Limit	40.6%	.4901	.4225
Weak Limit	40.2%	.4828	.4162

APPENDIX B – CONTENTS OF A FIRST AID KIT

UNITS	ITEM
3	Sterile gauze compress (36” x 36”)
2	Non-sterile triangular bandage (40” x 36” x 54”) with 2 safety pins
24	Sterile gauze pads (3” x 3”)
2	Adhesive Tape (1” X 2 ½ yards)
2	Sterile gauze roller bandage (2” x 6’)
12	Bandage compress (3”)
12	Bandage compress (“2”)
1	Bandage scissors (4”)
3	Sterile eye pads
100	Adhesive bandage (3/4” x 3”)
1	Moisture and dustproof kit of sufficient capacity to contain Materials of the first aid kit
1	Pair of medical examination gloves
1	Mouth to mouth airway

APPENDIX C – CONTENTS OF A BODY FLUID CLEAN-UP KIT

UNITS	ITEMS
1	Absorbent Pack - 5 oz.
2 pair	Plastic disposable gloves
1	Scoop
1	Scraper
2	Plastic trash bag with tie (Minimum 12 in. x 12 in.) 1 Red-biohazard and 1 black
1	Disinfectant - 8 oz.
1	Disposable Environmental Protection Agency (EPA) registered germicidal towels
1	Benzalkonium Chloride towelette
1	Antiseptic biohand cleaner - 4 oz.
1	Moisture and dustproof kit of sufficient capacity to contain materials of the body fluid clean-up kit

APPENDIX D – SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

A. TEST CHAMBER

Cross Section

The suggested test chamber is same cross section as bus body in which seats are used with rear section on each end. If bus section is not used, cross section to be 91" ± 1" in width x 75" ± 3" in height. There shall be a door, which does not provide ventilation, in the center of each end of the test chamber. The doors shall be 38" ± 3" in width and 53" ± 3" in height and include a latch to keep the doors closed during the test. See Figure 1.

Length

Length of chamber shall allow 3 rows of seats at the minimum spacing recommended by the installer or required by Federal Motor Vehicle Safety Standards. See Figure 1, Detail A.

In order that different types of seats may be tested in the same chamber, a length tolerance of plus 45" is allowed.

Ventilation

One ventilation opening shall be in each end of the test chamber and shall be 325 square inches ± 25 square inches. The bottom of the opening shall be 30" ± 3" above the chamber floor. Ventilation openings shall be on the same side of the test chamber. See Figure 1.

There shall be no ventilation openings along the length of the test chamber.

A forced air ventilation system may not be used.

Baffles shall be used to prevent wind from blowing directly into the ventilation openings.

Camera View Area

An opening covered with glass shall be provided at the midpoint of the chamber length for camera viewing. The opening shall allow the camera to view the seat parallel to the seat width. See Figure 1.

APPENDIX D - SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

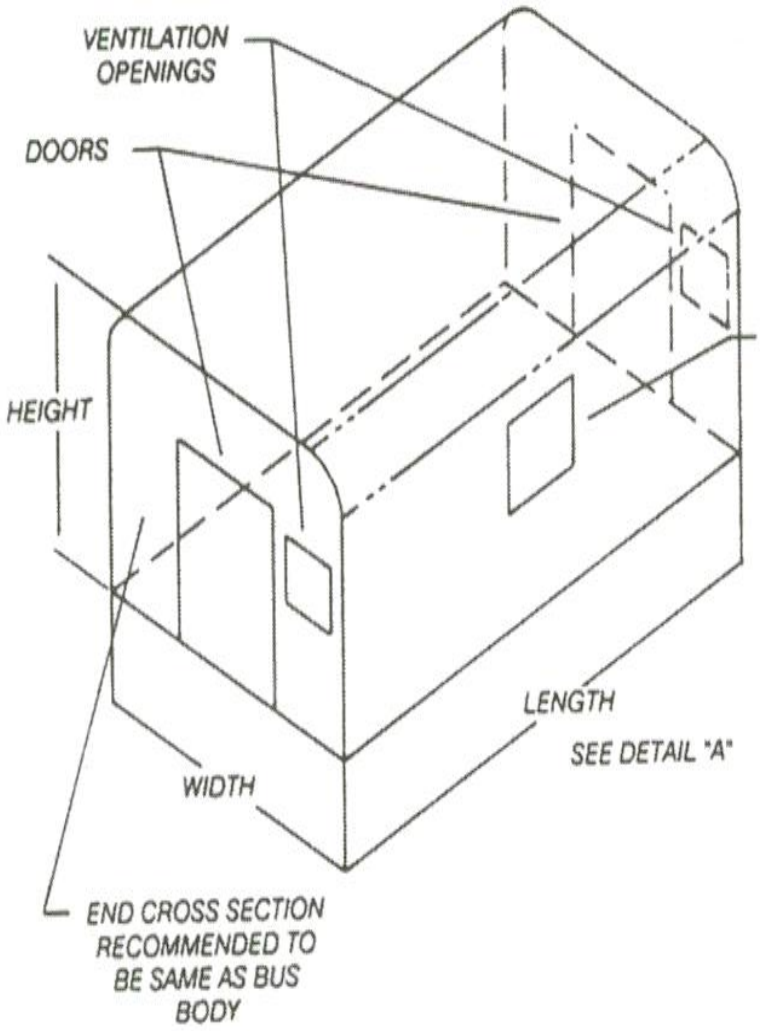
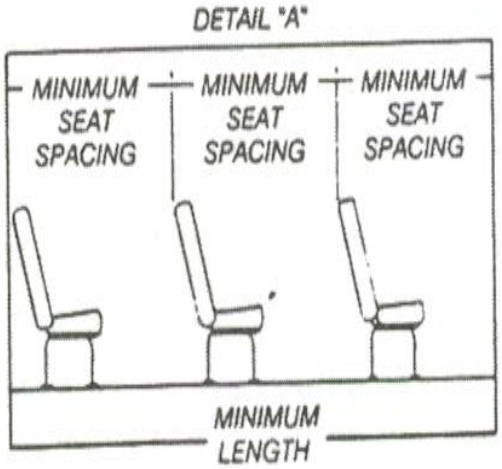


Figure 1



APPENDIX D – SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

B. TEST SAMPLE

Sample shall be fully-assembled seat.

Record the weight of all padding upholstery prior to assembly. Record the weight of the fully assembled seat.

IGNITION

A paper grocery bag whose dimensions are approximately 7" x 11" x 18" is used to contain double sheets of newsprint (black print only, approximately 22" x 28"). The total combined weight of bag and newspaper shall be 7 oz. + .5 oz.

TEST PROCEDURE

1. Install three (3) seats in test chamber at minimum spacing per installer recommendation of FMVSS requirement. Seats shall be perpendicular to the dimension indicated as "length" in Figure 1 Detail A. Install so that seat frames will not fall during test. Seat width shall be determined so that maximum passenger capacity per row (2 seats) for the seat style shall be tested.

2. For each test, position ignition source in the following positions outlined. Widest seat in the center row shall be tested.

Position A

Position ignition source with 18" dimension in contact with seat cushion and touching seat back. Center bag on top of cushion. See Figure 2.

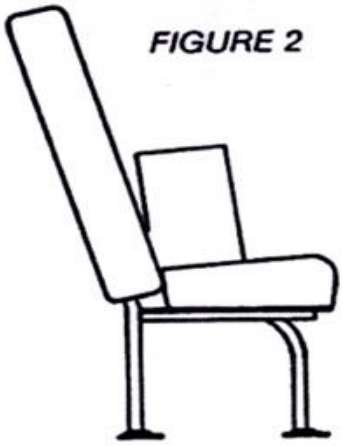


FIGURE 2

APPENDIX D – SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

Position B

Position ignition source on floor behind seat with 18” dimension on floor and parallel to seat width centered on width so that rear of bag does not extend rear of seat back.
See Figure 3.

Position C

Position ignition source on floor on aisle side of seat with 18” dimension on floor and perpendicular to seat width touching seat leg with centerline of bag at center of seat back. See Figure 4

APPENDIX D - SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

3. A wooden match shall be used to light the ignition source. Time the test beginning where the ignition source is on fire until all flame is out.

4. After each ignition source position test, weigh seat assembly including loose materials on the seat. Do not include loose material which has fallen off the seat onto the floor.

C. PERFORMANCE CRITERIA

For each ignition source position test, the seat tested must meet all of the following criteria. A new seat specimen may be used for each ignition source position test.

1. Maximum time from ignition to flameout shall be 8 minutes.

2. Flame shall not spread to any other seat with ignition source in Position A and Position C.

3. Weight loss may not exceed 10% of pretest weight of padding and upholstery.

APPENDIX E - NOISE TEST PROCEDURES

A. The vehicle is located so that no other vehicle or signboard, building, hill, or other large reflecting surface is within 15.2 m (50 feet) of the occupant's seating position.

B. All vehicle doors, windows, and ventilators are closed.

C. All power-operated accessories are turned off.

D. The driver is in the normal seated driving position and the person conducting the test is the only other person in the vehicle.

E. A sound level meter is used that is set at the "A-weighting fast" meter response and meets the requirements of:

1. The American National Standards Institute, Standard ANSI S1.4-1971. "Specifications for Sound Level Meters," for Type 1 Meters; or

2. The International Electrotechnical Commission (IEC), Publication No. 179 (1973). "Precision Sound Level Meters".

F. The microphone is located so that is points vertically upward 6 inches to the right and directly in line with and on the same plane as the occupant's ear adjacent to the primary noise source.

G. If the motor vehicle's engine radiator fan drive is equipped with a clutch or similar device that automatically either reduces the rotational speed of the fan or completely disengages the fan from its power source in response to reduced engine cooling loads, the vehicle may be parked before testing with its engine running at high idle or any other speed the operator chooses for sufficient time, but not more than 10 minutes, to permit the engine radiator fan to automatically disengage.

H. With the vehicle's transmission in neutral gear, the engine is accelerated to:

1. Its maximum governed speed, if it is equipped with an engine governor, or

2. Its speed at its maximum rated horsepower, if it is not equipped with an engine governor, and the engine is stabilized at that speed.

I. The A-weighted sound level reading on the sound level meter for the stabilized engine speed condition referred to in H.1. or H.2. above is observed and, if it has not been influenced by extraneous noise sources, is recorded.

APPENDIX E - NOISE TEST PROCEDURES

J. The vehicle's engine speed is returned to idle and the procedures set out in paragraphs H. and I. are repeated until two maximum sound levels within 2 dbA of each other are recorded, the two maximum sound level readings are then averaged; and

K. The average obtained in accordance with paragraph J., with a value of 2 dbA subtracted therefrom to allow for variations in the test conditions and in the capabilities of meters, is the vehicle's interior sound level at the driver's seating position for the purposes of determining compliance with the requirements of this test procedure.

APPENDIX F - RETRO REFLECTIVE SHEETING

DAYTIME COLOR SPECIFICATION PROPOSAL

The daytime color of the RETRO REFLECTIVE sheeting used to enhance school bus safety requires different color tolerances in order to assure optimum safety benefit as well as to be consistent with the color of the school bus.

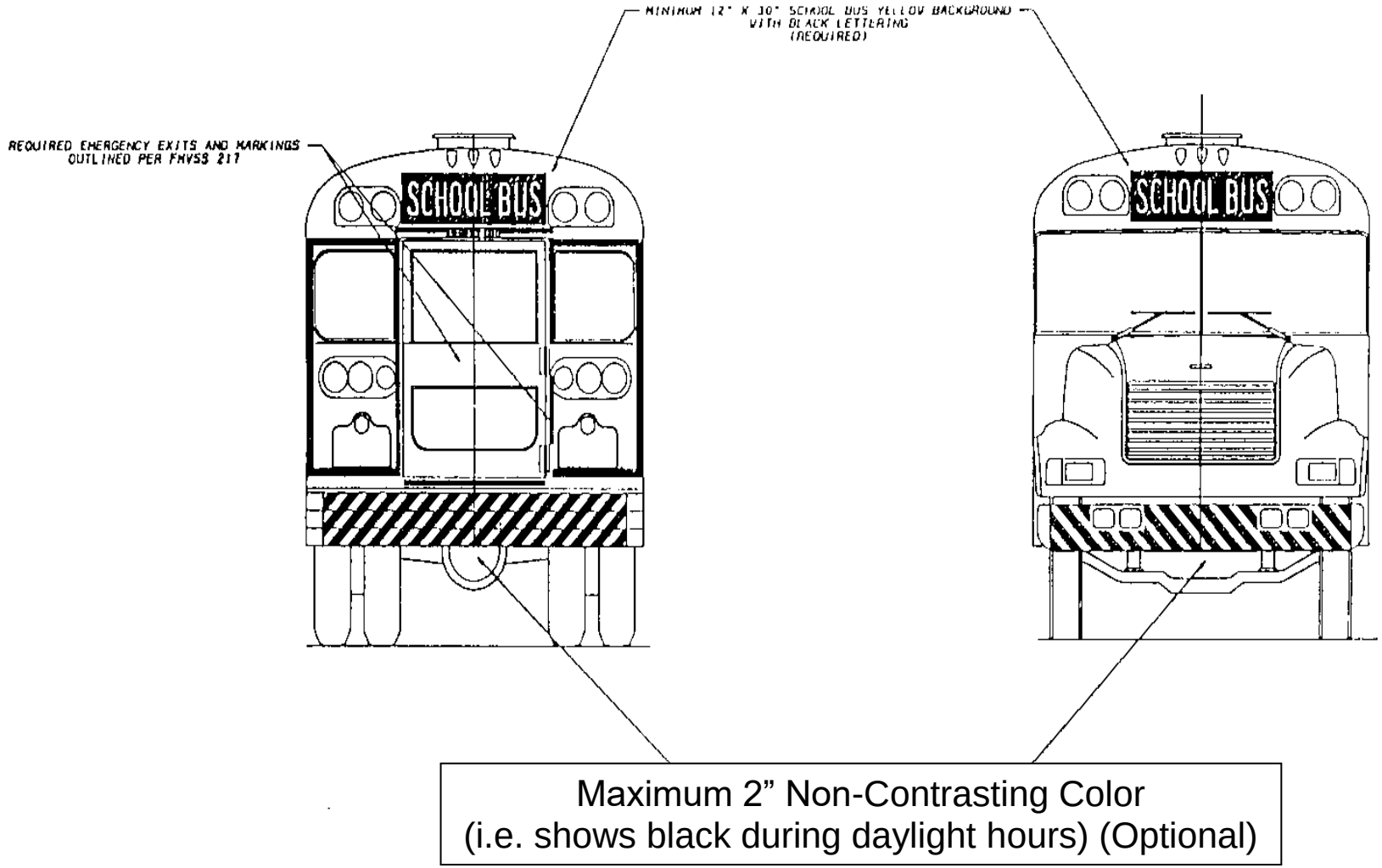
The color of the RETRO REFLECTIVE sheeting shall conform to the table below when samples applied to aluminum test panels are measured as specified in ASTM E1164. For colorimetric measurements, material is illuminated by Standard Illuminant D65 at an angle of 45 degrees with the normal to the surface the observations are made in the direction of the normal (45/0 degree geometry). The inverse (0/45 degree geometry) with the illuminant at the normal to the surface and the observations at 45 degrees with the normal to the surface may also be used. For materials which are directionally sensitive (e.g. prismatic sheeting), the colorimetric measurements are made using circumferential illumination and viewing and the various measurements are averaged. Calculations shall be done in accordance with ASTM E308 using the CIE 1931 (2 degree) Standard Observer.

RETRO REFLECTIVE SHEETING DAYTIME COLOR
CHROMATICITY COORDINATES OF CORNER POINTS
DETERMINING THE PERMITTED COLOR AREA

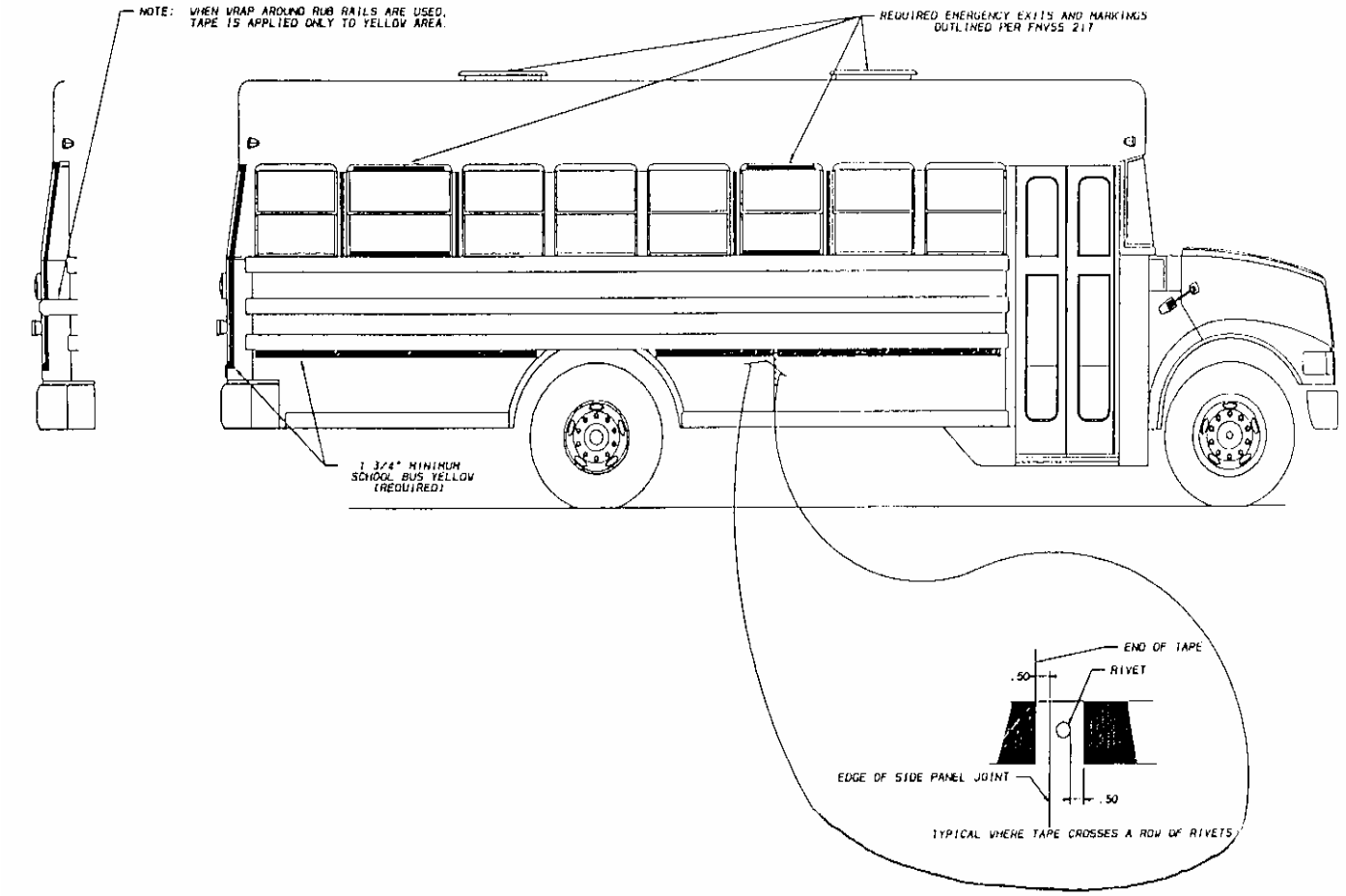
Yellow	X	0.484	0.513	0.517	0.544
	Y	0.455	0.426	0.482	0.455

Luminance Factor (Y%)	Minimum	10.0
	Maximum	36.0

APPENDIX F - RETRO REFLECTIVE SHEETING



APPENDIX F - RETRO REFLECTIVE SHEETING



PLACEMENT OF RETROREFLECTIVE MARKINGS

APPENDIX G – REFERENCE LIST

Reference

American National Standards Institute
1430 Broadway
New York, NY 10018

School Bus Manufacturers Institute
Division of Truck Body & Equipment Association
4907 Cordell Avenue
Bethesda, MD 20814
(301) 652-8004

ASME International
Three Park Avenue
New York, NY 10016-5990
(212) 591-7740
http://www.asme.org

School Bus Manufacturer's Technical Council
Nat'l Association of State Directors of Pupil Transportation
116 Howe Drive
Dover, DE 19901

Society of Automotive Engineers (SAE)
400 Commonwealth Drive
Warrendale, PA 15096
(4120 776-4841

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062

National School Transportation Specification & Procedures
Missouri Safety Center
Central Missouri State University
Humphreys Suite 201
Warrensburg, MO 64093
(660) 543-4830

APPENDIX G – REFERENCE LIST (con't)

Reference

National Fire Protection Agency
1 Batterymark Park
P.O. Box 9101
Quincy, MA 02269
http://nfpa.org

U.S. Department of Commerce
Office of Product Standards Policy
National Bureau of Standards
Washington, D.C. 20231
http://commerce.gov

Department of Transportation
Federal Highway Administration
1200 New Jersey Avenue, SE
Washington DC 20590
http://www.fhwa.dot.gov/

International Electrotechnical Commission
OEC Regional Centre for North America
446 Main Street
16th Floor
Worchester, MA 01608
http://www.iec.ch/

ASTM International
100 Barr Harbor Dr.
PO Box C700
West Conshohocken, PA 19428-2959
http://www.astm.org

National Highway Transportation Safety Agency (NHTSA)
1200 New Jersey Avenue, SE
Washington DC 20590
http://www.nhtsa.gov

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

When working on or around a vehicle, the following general precautions should be observed at all times:

A. Park the vehicle on a level surface, apply the parking brakes and always block the wheels.

B. Always wear safety glasses and other appropriate safety gear.

C. Stop the engine and remove ignition key when working under or around the vehicle.

D. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.

BODY EXTERIOR

A. Visually inspect the body exterior to ensure that there is not any panel, rub rail or trim that is loose, torn, dislocated or protruding from the surface of the bus that would create a hazard.

B. All engine, battery or other doors must be securely mounted and properly installed.

BODY INTERIOR

Aisle

A. Visually inspect the aisle to ensure that all aisles, including aisle (or passageway between seats) leading to emergency door are a minimum of 12 inches.

B. Visually inspect to ensure that there are no obstructions in an aisle that would prevent passengers from egress to emergency exits.

C. On school buses with a side emergency door, check that aisle space from center aisle to side of emergency door is 12 inches by measuring between the vertical line of the seat back and the face of the next seat cushion or bottom of a flip seat.

D. On buses equipped with flip up seats, inspect to ensure the seat cushion rises to a vertical position automatically when not occupied.

Door, Entrance

Visually inspect and operate entrance door and inspect door to properly open and close without any obstruction of movement. Inspect manually operated door to make sure door will maintain an open and closed position. Door shall not have any locking device except for interlock systems. On power-operated entrance doors, the emergency release valve, switch or device to release the entrance door must be placed above or to the immediate left or immediate right of the entrance door and must be clearly labeled.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Floor

Visually inspect floor covering, aisle and cove molding strips for condition and adhesion. Check fastening holes for cracks, and check condition of rubber in aisle to ensure that there are no unsealed holes or cracks through the underside of the bus and that there is no damage to the coverings which could cause a trip or slip hazard.

Handrail

Handrail must be securely mounted and all OEM hardware present. Perform the NHTSA *Nut and String Test* as described and illustrated below.

Nut and String Test

The Handrail Inspection Tool and Procedure

The inspection tool is inexpensive and the procedure for detecting potentially fatal handrail designs is quite simple. The inspection tool is a standard ½ inch hex nut measuring ¾ inch across the flats. This nut is tied to ⅛ inch thick cotton cord measuring 36 inches in length with overhand knots. The drawstring should have a minimum length of 30 inches, when tied to the nut and attached so that a pull of at least 10 pounds does not separate the nut from or break the drawstring.

Steps to conduct a handrail inspection are:

- Stand on the ground outside of the bus;
- Drop the inspection tool between the handrail and step well wall, simulating the typical way students exit the bus;
- Draw the inspection tool through the handrail in a smooth, continuous slow motion; and
- Repeat this procedure several times (minimum of three times).

Note: It is important to drop the inspection tool over the handrail in such a way as to simulate a child exiting the bus. This is a drop-and-drag test. Do not create a snagging situation by placing the nut in an area that would not be exposed to a drawstring or other articles.

Inspection Results

Take the bus out of service and repair it if the inspection tool catches or snags anywhere on the handrail. If the nut separates from the drawstring or the drawstring breaks, reassemble the tool and retest. If the inspection tool pulls freely without catching or snagging, the bus should not be rejected.

Panels

Visually inspect all interior sidewall, rear, ceiling and driver's area paneling for secure fastening, projections or sharp edges and general condition.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Seat(s) and Barrier(s)

A. Visually inspect all seats and barriers to ensure that all are securely mounted and not loose or broken.

B. All seats shall be forward-facing and securely fastened to the bus body. Passenger seat cushions shall be fastened to prevent the cushions from disengaging from the seat frames in the event of an accident. There shall be a minimum space of 24 inches between the forward surface of a seat back and the rear surface of the seat or barrier ahead measured across the seat cushion without depressing any surface. The forward surface may have side bolsters that briefly reduce the width to less than 24 inches provided the remainder of the seat measures at least 24 inches.

C. Seats and barriers should appear symmetrical. Seats/barriers that do not appear symmetrical should be physically inspected to ensure seat covering and/or padding is not significantly compromised and complies with FMVSS 571.222.

Seat, Driver

A. Visually inspect driver's seat to ensure that it is securely fastened to the vehicle.

B. Visually inspect the driver's seat for its ability to maintain the adjusted position. Inspect driver's restraining device (seat belt) for fraying, attaching hardware and the capacity of the seat belt for maintaining the driver in the seated position.

Stepwell

Visually inspect the stepwell for the condition of support structure to ensure structural stability. Inspect stepwell treads to ensure proper securing and adhesion to stepwell. Visually inspect step treads for any excessive worn areas that may pose a tripping or slip hazard.

BRAKE SYSTEMS

Air System

A. With full system air pressure, depress the brake pedal and inspect each wheel end brake to determine if effective braking forces are applied to each wheel end brake. There should be no audible air loss at supply lines, fittings, valves or brake chambers.

B. With full system pressure, make a single full service brake application with the parking brake and ignition off. Note the gauges and listen for air leaks. Release the service brake.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

C. If an air leak is detected at any point in the inspection process, the inspector should check the vehicle's air loss rate following these procedures:

1. Set engine at idle and release brakes;

2. Reduce air pressure in reservoir to 80 psi;

3. Make a full brake application with governor cut-in; and

4. Check air pressure gauge after initial application for air loss. Air pressure should be maintained or increase. A drop in pressure indicates a serious air leak in the brake system.

Air Brakes Measurement

The following procedure is based on the applied stroke method for measuring the movement of the brake chamber push rod:

A. Release the spring brakes and visually check each brake to ensure that it is in the normal released position.

B. With the brakes released, make a mark where the pushrod exits the brake chamber.

C. With the engine off, make a series of brake applications to reduce the reservoir pressure to between 90 to 100 psi.

D. Apply and hold a full brake application (90 to 100 psi).

E. Measure the distance between the mark and the face of the brake chamber. The difference between measurements is called the chamber applied stroke.

Note: Any brake that is beyond the re-adjustment limit will require repairs and/or adjustment. (See Table 1: *Brake Adjustment Specifications* below.)

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Table 1: Brake Adjustment Specifications

Brake adjustment: Shall be less than those specifications contained herein relating to "Brake Adjustment Limit."
(Dimensions are in inches.)

CLAMP TYPE BRAKE CHAMBER DATA		
Type	**Outside Diameter**	**Brake Adjustment Limit**
6	4 1/2	1.25
9	5 1/4	1.375
12	5 11/16	1.375
16	6 3/8	1.75
20	6 25/32	1.75
24	7 7/32	1.75
30	8 3/32	2
36	9	2.25

"LONG STROKE" CLAMP TYPE BRAKE CHAMBER DATA		
Type	**Outside Diameter**	**Brake Adjustment Limit**
12	5 11/16	1.75
16	6 3/8	2.0
20 (2 ½" Rated Stroke)	6 25/32	2.0
20 (3" Rated Stroke)	6 25/32	2.5
24 (2 ½" Rated Stroke)	7 7/32	2.0
24+ (3" Rated Stroke)	7 7/32	2.5
30	8 3/32	2.5

DD-3 Brake Chamber Data		
Type	**Outside Diameter**	**Brake Adjustment Limit**
30	8 1/8	2.25
Note: This chamber has three air lines and found on motor coaches.		

Wedge Brake Data
The combined movement of both brake shoe lining scribe marks shall not exceed 1/8 inch (3.18mm).

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Brake Shoe/Pad/Lining

A. Visually inspect all brake linings/shoes/pads. Linings may be checked through inspection slots. All shoes/pads/linings shall comply with the applicable standards.

B. The brake lining/pad thickness shall not be less than $^{3}/_{16}$ inch at the shoe center for a shoe with a continuous strip of lining, less than ¼ inch at the shoe center for a shoe with two pads, or worn to the wear indicator if the lining is so marked, for air drum brakes.

C. The brake lining/pad thickness shall not be less than ⅛ inch for air disc brakes, or $^{1}/_{16}$ inch or less for hydraulic disc brakes.

D. Visually inspect the brake lining/pad to ensure that it is firmly attached to the shoe, is not cracked or broken, and that the friction surface is not saturated with oil, grease, or brake fluid.

E. Visually inspect all brake components mounting hardware for any loose, cracked, broken or missing items. This inspection should be performed with the brakes released and with the brakes applied. It may be necessary to remove inspection access covers, brake dust covers or, in some instances, pull wheels and drums to accomplish the inspection.

Chamber Size

Visually inspect all brake chambers to ensure they are properly marked, in good operating condition, have no visible damage, and are properly matched. Chambers must be matched by size, type and stroke.

Drums/Rotors

A. Visually inspect all brake drums/rotors for any external cracks that open when brakes are applied. (Do not confuse short hairline internal check cracks with flexural cracks.)

B. Inspect for any portion of the drum/rotor missing or in danger of falling away.

Note: It may be necessary to remove inspection access covers, brake dust covers or, in some instances, pull wheels and drums to accomplish the inspection.

Hoses and Tubing

A. Carefully perform a visual inspection of all system hoses, lines, and tubing.

B. Inspect all hoses, lines, and tubing for any audible leak (if air), or visible leak (if hydraulic), any bulging/swelling when the system is pressurized, any hose, line, or tubing is cracked, broken or crimped in such a manner as to restrict flow, any hose abraded (chafed) through outer cover to fabric layer or any line/tubing, and for proper securement and support.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Hydraulic Brakes Measurement

A. With the brake pedal in the full upright position, the inspector shall measure the distance between the brake pedal and the floor or firewall. With the engine running, a single firm brake application shall be made and the distance between the brake pedal and the floor or firewall shall be measured a second time. The difference shall be recorded.

B. With vehicle stopped and engine running, depress brake pedal. The system must be able to maintain brake pedal height under moderate foot force (40-60 pounds) for one minute without pumping. With vehicle in stopped position and brake pedal depressed under moderate foot force (40-60 pounds) there should be a minimum of ⅓ of the total available pedal travel (manufacturer's specification) remaining on nonpowered systems.

Hydraulic Brake System

A. With the engine off, turn the ignition switch to the "on" position and check the instrument panel for visible and audible warning signals to indicate system malfunction. If bus is equipped with vacuum assist, it shall have a visible warning signal and gauge to indicate any loss of vacuum. Audible signals must be loud enough to be heard over engine noise.

B. Visually inspect the master cylinder to determine if it is below the minimum fill requirements, is leaking, is loose or improperly mounted.

C. Visually inspect the hydraulic fluid reservoir level in the master cylinder unit. Inspect for any fluid leaks on wheel cylinders/calipers, master cylinders, hose connection and hydrovac and on buses using vacuum-assisted brakes. Check for brake fluid around the brake booster between the booster and firewall.

Parking Brake

A. With the engine operating and the park brakes set, place the transmission in both forward and reverse gears to determine if brakes will hold vehicle stationary.

B. Visually and physically check condition of parking brake system and parking brake warning light.

Pedal Reserve

A. With the brake pedal in the full upright position, the inspector shall measure the distance between the brake pedal and the floor or firewall. With the engine running, a single firm brake application shall be made and the distance between the brake pedal and the floor or firewall shall be measured a second time. The difference shall be recorded.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

B. With vehicle stopped and engine running, depress brake pedal. The system must be able to maintain brake pedal height under moderate foot force (40-60 pounds) for one minute without pumping. With vehicle in stopped position and brake pedal depressed under moderate foot force (40-60 pounds) there should be a minimum of ⅓ of the total available pedal travel (manufacturer's specification) remaining on nonpowered systems.

Power Assist Unit

A. Electric/Hydraulic Assist: With engine off, depress the brake pedal. The electric/hydraulic brake assist motor must operate.

B. Hydrovac Assist: With engine off, the driver shall pump the brakes to exhaust all reserve. Hold firm pressure on the brake pedal and start the engine. The pedal should fall slightly. Failure of the pedal to fall slightly indicates a malfunction of the power assist unit.

C. Hydro-boost: After 2-3 brake applications with the engine off, start the vehicle while maintaining pressure on the brake pedal. The pedal should push briefly, and then fall as the power assist engages.

Slack Adjuster Length

Measure from the center of the S-cam to the center of the push rod clevis pin. All slack adjusters on a single axle shall be of the same type and length.

DIFFERENTIAL

The Inspector shall visually inspect the differential and differential housing for cracks and leaks. Careful attention shall be made to the areas of mounting attaching hardware and wheel end areas. Housing vent shall be inspected to ensure that it is not clogged and is functional by twisting the vent cap by hand.

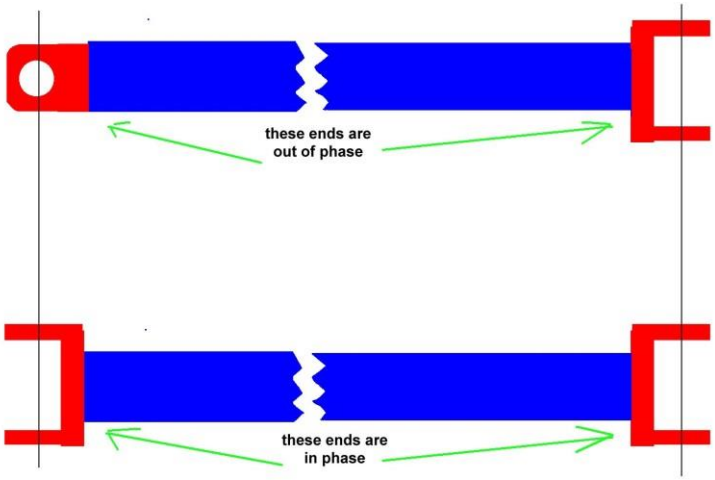
APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

DRIVESHAFT

A. Visually and physically inspect each segment of the driveshaft and associated hardware. Inspect for bends, cracks, missing weights or debris entangled in the shaft.

Each shaft more than 18 inches long shall be equipped with a suitable guard to prevent an accident or injury in the event of its fracture or disconnection. The inspector shall check to ensure that the driveshaft guards are not loose, bent or missing.

B. Visually and physically inspect each universal joint and center bearing. The universal joint(s) and center bearing(s) shall not be loose or worn and shall have all attaching hardware securely fastened. The inspector shall check for lateral and vertical movement of the universal joints and center bearing by grasping the universal joint and attempting to move the joint laterally and vertically. Inspector shall inspect universal joints for substandard or welded repairs.



C. Visually inspect driveshaft for proper phasing. (See illustration.)

ELECTRICAL/BATTERY

Battery

A. Visually and physically inspect that the battery(ies) is(are) securely mounted and no signs of leaking, or excessive corrosion.

B. Crank engine to ensure adequate battery capacity to start engine.

Cables

A. Visually inspect all electrical cabling and wiring for chafed, frayed, damaged or burnt insulation.

B. Visually and physically inspect for corroded or loose connections at the battery terminals. Inspect for unsuitable insulation to electrical cabling.

C. Inspect for missing or damaged protective grommets insulating all electrical cables through metal compartment panels. All electrical cabling passing through a metal surface shall pass through an insulated grommet as to provide adequate protection against chaffing and shorting.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

D. Visually and physically inspect for any broken or unsecured mounting of electrical components.

E. Visually and physically inspect electrical cabling for securement, routing or any unsecured wiring that may cause chafing or frayed conditions.

Windshield Wipers

Operate wiper and washer system. The wiping system should be power-driven with at least two speeds and should be able to clean the area of the windshield within the wiping pattern. Wipers should operate with a minimum of 45 cycles per minute.

EMERGENCY EQUIPMENT

A. Visually inspect that the fire extinguisher is readily accessible to the driver and passengers, that it is fully charged of proper type and size, is properly secured and has a working pressure gauge.

B. Visually inspect any other state-required equipment such as first aid kits, body fluid kits, webbing cutters and emergency reflectors and ensure that these items are fully stocked, functional and properly secured.

EMERGENCY EXITS

A. Visually inspect all emergency exits.

1. Operate all emergency exits. Exits must open freely and completely.

2. Door prop rods must operate freely and hold door or exit in open position without obstructing exit.

3. There shall be no padlocks or any other locking devices on exits except interlocking systems.

B. Visually inspect all exits to ensure they are clearly labeled and marked on both the inside and outside of the bus.

C. Ensure that all exits have an audible device to alert the driver of an open exit door or window.

Note: FMVSS 571.217 defines the number of exits for each type of bus.

ENGINE

A. Visually inspect engine and surrounding components for evidence of fluid leaks and loose or damaged components. Inspector shall start engine. While engine is operating, inspector shall visually and audibly monitor engine for proper operation, leaks and unusual noises of engine or components.

B. Inspect cooling fan per manufacturer's recommendations.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

C. Visually and physically inspect all drive belts for proper alignment and tension per manufacturer's recommendations. All belts shall be free of cracking, frays, fluid, glazing and excessive wear. Inspect belt-tensioner per manufacturer's recommendations.

D. Visually inspect all hydraulic, coolant, fuel and pneumatic hoses for damage, proper routing, proper type and proper securement. Hoses shall be routed in such a way as to avoid contact with exhaust, rotating or moving engine components or sharp edges. Hoses shall not be cracked, leaking, swollen or chaffed.

EXHAUST SYSTEM

A. Visually and audibly inspect the complete exhaust system including muffler, diesel particulate filter (DPF) and diesel oxidation catalyst (DOC) for leaks, restrictions and damage and to ensure that exhaust is not discharging directly below the driver or passenger compartment. All exhaust emission control devices shall be installed and operating per the manufacturer's recommendations.

B. Inspect for the presence and condition of heat shielding over and around all piping, and components where specified by vehicle manufacturer.

C. Visually and physically inspect all exhaust system mounting hardware for loose, missing or damaged components and that it is securely attached. Inspect to ensure that all clamps are in place and secure.

D. Visually inspect exhaust system for indications of, and areas likely to result in, burning, charring or damaging the electrical wiring, the fuel supply or any combustible part of the vehicle.

FUEL SYSTEM

A. Visually inspect all parts of the fuel tank, fuel tank cage and fuel system to include lines, hoses, filters, fill cap and fittings for indications of damage or leaks.

B. Visually and physically inspect fuel lines and hoses for proper securement, routing and missing or loose clamps that may cause chafing or come in contact with electrical components.

LAMPS/SIGNALS

A. Visually inspect all lamps, such as brakes, turn signals, tail, head (low beam), overhead warning lights (amber and red), hazard warning and stop arm lights to ensure proper visibility and operation. Turn signals should flash at a rate of 60 to 120 times per minute.

B. Inspect that the horn functions and is audible from approximately 200 feet away.

C. Inspect the crossing control device, if equipped, for proper operation (e.g., that it extends and retracts as designed).

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

MIRRORS

Visually inspect all mirrors to identify any mirror that is damaged, clouded or otherwise has an obscured area. All mirrors should hold a set adjustment. All mirrors should be directed to view the intended area for which they are designed.

STEERING SYSTEM

Ball and Socket Joints

A. With the bus on the ground, the inspector shall examine the ball joint nut stud for movement while the steering wheel is being rocked in a back-and-forth action. The inspector shall examine the ball/socket joint for weld repairs.

B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets attempting to laterally and vertically move the ball joint. (Rotational movement will not be considered.) Any motion other than rotational, greater than 1/8 inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.

Front Axle Beam

Visually examine the front axle beam for any obvious bend or twist, any cracks, or any welded repair.

Hoses/Fluids

Visually examine the power steering fluid reservoir for proper fluid level. With the system operating, inspect all system components, hoses and fittings for leaks.

Nuts

Visually examine all tie rods, pitman arm, drag link, steering arm and tie rod arm for looseness and missing fasteners.

Pitman Arm

A. While the steering wheel is being rotated in a back-and-forth motion; visually inspect the pitman arm and output shaft connection for looseness at the output shaft joint.

B. The pitman arm shall also be inspected for damage, cracks or welded repairs.

Power Steering

A. The inspector shall manually manipulate the auxiliary power assist cylinder to check for looseness. The inspector shall start the bus and rotate the steering wheel in a back-and-forth action to ensure the power steering pump is operable.

B. With the engine stopped inspect the system drive belt(s) for any fraying, cracks or fluid saturation. Check belt tension. On units equipped with automatic tensioner ensure that tensioner moves freely.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

C. Inspect the fluid reservoir while at operating temperature to ensure that the fluid level is not below add mark. Inspect for signs of fluid leakage.

Steering

A. Visually inspect for any modification or other condition that interferes with free movement of any steering component. Turn steering wheel through a full right and left turn and feel for binding or jamming conditions. Both front wheels must be capable of being turned to full right or full left without binding or interference.

B. Inspect turn stops by observing for shiny spots and/or signs of wear due to contact with other vehicle components on the sides of tires, drag links, pitman arm, shock absorbers or brake lines.

Steering Column/Wheel

A. Inspect steering column for any looseness in bolts, clamps, positioning parts or universal joints. Inspect flexible coupling in steering column (if the vehicle is so equipped) for excessive misalignment and tightness of clamp bolt or nut.

B. The steering column and components shall also be inspected for damage, cracks or welded repairs. Inspect steering wheel to ensure that it is properly positioned and secured.

C. Place steering axle wheels in a straight ahead position have an assistant turn the steering wheel until movement is observed at the left road wheel and measure the steering wheel movement from starting position to wheel movement position. Compare this measurement to the applicable listing in Table 2: *Steering Wheel Free Play*, below.

Table 2: Steering Wheel Free Play

Steering Wheel Free Play: Steering wheel free play shall not exceed the requirements listed in the following chart:

Steering Wheel Diameter	Manual System Movement 30	Power System Movement 45
16” (41cm)	2” (5.1cm)	4 1/2” (11.5cm)
18” (46cm)	2 1/4 “ (5.4cm)	4 3/4” (12cm)
20” (51cm)	2 1/2” (6.4cm	5 1/4” (13.5cm)
22” (56cm)	2 3/4” (7cm)	5 3/4” (14.5cm)

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

Steering Gear Box

A. Visually examine the steering gear box for any loose, damaged or missing mounting bolts. Inspect for cracks in the gear box, mounting brackets or any obvious welded repairs.

B. While having an assistant rock the steering wheel back-and-forth; visually inspect the steering shaft and gear box for any looseness where the steering gear box is mounted to the frame. Visually inspect steering shaft coupler for cracks, damage or looseness.

C. With the engine operating inspect for excessive fluid and/or oil leak (observable movement of fluid).

Tie Rods/Drag Links

A. While having an assistant to rock the steering wheel back-and-forth, visually inspect the tie rod ends, crossbar, and drag links for any looseness at the steering linkage pivot points.

B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets attempting to laterally and vertically move the ball joint (rotational movement will not be considered). Any motion, other than rotational, greater than ⅛ inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.

C. Check crossbar for structural damage and crossbar clamps for secure mounting.

SUSPENSION COMPONENTS

Axle Parts/Members

A. Visually and physically inspect all front and rear axle components. Inspect all U-bolts and other suspension to axle mounting hardware for cracks, breaks, looseness or improper type.

B. Inspect axle, axle housing, spring hanger(s), shackles or other axle components for alignment, cracks, breaks and loose or missing items that could result in shifting of an axle from its normal position.

C. Inspect front axle beam for signs of improper repair (e.g., welding or heating).

D. Inspect for any worn (beyond manufacturer specifications) or improperly assembled U-bolt, shock, kingpin, ball joint, strut, air spring or positioning components.

E. Inspect all leaf spring hangers, hanger assemblies or portions of leaf for broken, separated, sagging, bent, abnormally worn (beyond manufacturer specifications), shifted or missing components.

F. Inspect pins and bushings for wear, off-center spring eye, rubbing shackle or nonsymmetric joints. Inspect for any broken, weak or damaged coil spring and mounting assemblies.

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G. Visually and physically inspect all hydraulic shock absorbers for leaks, looseness, damage or missing components.

H. Inspect air suspension (if equipped). Observe that the vehicle is lifting level. With the air system fully charged, inspect for any audible or visual air leakage at the air spring assembly, supply hoses and connections.

Caution: Inspector should use caution whenever underneath the vehicle. There may not be sufficient room underneath the vehicle should a problem occur with the air suspension system.

Bumpers

Visually inspect front and rear bumpers for missing attaching hardware or broken hardware. Ensure bumpers are properly mounted and secure and that there is no point protruding beyond the confines of the vehicle so as to create a hazard.

Chassis/Frame/Unibody

A. Visually inspect frame for cracks, loose attaching hardware, sagging, broken, or unapproved welds to frame side rail or flange.

B. Visually and physically inspect for body hold-down components for damage that would permit the shifting of the body.

C. Inspect for cracked, loose, bent, broken or unapproved welds to frame member that affect support of functional components (e.g., steering gear, engine, transmission, body parts or suspension). Welding to frame should be performed only by manufacturer or designee.

Note: Inspect for any crack 1 ½ inch or longer in the frame side rail web which is directed toward bottom flange or any crack extending from the frame side rail web around the radius and into the bottom flange.

Crossmembers

A. Visually and physically inspect all crossmembers, attaching hardware and other structural supports for cracks or deformations. Visually inspect for three or more adjacent cross members that are missing, broken, damaged or loose.

B. Inspect any area of the floor that is sagging, weak or damaged due to broken, damaged or loose crossmembers.

Outriggers/Body Supports

Visually inspect all outriggers and attaching hardware for cracks, missing bolts and damage.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

TIRES/WHEELS/HUBS

Hub & Assemblies

A. Visually inspect kingpin and wheel bearing assemblies for looseness, damage, missing or loose fasteners. This shall include locking pins, draw keys, caps and bearings.

B. Physically inspect kingpin and bearing assemblies for play as follows: with the tire raised off the ground, grasp tire at top and attempt to move the wheel assembly in and out. If movement is present, inspector can help to identify the source by following this procedure:

Have an assistant fully apply brakes while rechecking play. If movement disappears with brakes applied, then play is in the wheel bearings. If movement remains, it is most likely in the kingpin area. Assembly shall not have excessive kingpin play that exceeds .250 inch measured at outside edge of tire or wheel bearing movement that exceeds .010 inch measured at bearing hub.

C. Visually inspect A-frames and bushings on Type A vehicles. Inspect bushings for wear, cracking, splitting, or severe extrusion from suspension parts.

D. For vehicles equipped with “wet hubs” or oil bath hubs the inspector should visually check the site glass for lubricant level.

Tire Inflation

A. Visually inspect that tires are properly inflated and do not have noticeable leaks. (See 393.76 (h)(1),(2).) If pressure is questionable, inspector shall use a tire pressure gauge to verify pressure.

B. Visually inspect valve stem for damage and presence of valve cap.

Tire Sidewall

Inspector shall inspect tire sidewall for cuts, wear and any observable bumps or bulges.

Tire Tread Depth

A. Visually inspect for any front tire worn to less than $^{4}/_{32}$ inch.

B. Visually inspect for any rear tire worn to less than $^{2}/_{32}$ inch.

C. If a visual inspection cannot determine that the tire meets the minimum depth requirement, the inspector shall use a commercial tire depth gauge to verify tread depth.

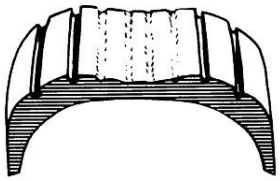
Tire Type

A. Visually inspect the steer axle (front) to ensure that no recapped, re-grooved tires are present.

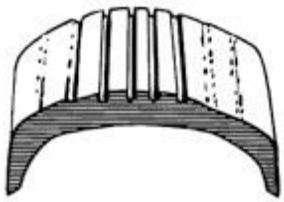
B. Visually inspect tires for improper wear patterns. (See Tire Wear Chart below.)

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

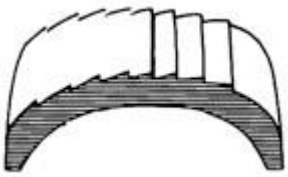
C. Check proper type (i.e., load range, size, mismatched on axle).



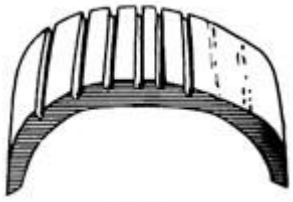
Over Inflation: Excessive wear at the center of the tread indicates that the air pressure in the tire is consistently too high. The tire is riding on the center of the tread and wearing it prematurely. Many times, this visual method of inflation (inflating the tires up until there is no bulge at the bottom) is at fault; tire inflation pressure should always be checked with a reliable tire pressure gauge.



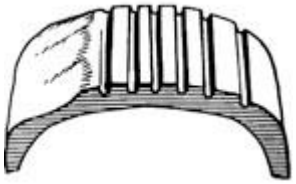
Under Inflation: This type of wear usually results from consistent under inflation. When a tire is under inflated, there is too much contact with the road by the outer treads, which wear prematurely. Tire pressure should be checked with a reliable pressure gauge. When this type of wear occurs, and the tire pressure is known to be consistently correct, a bent or worn steering component or the need for wheel alignment could be indicated. Bent steering or idler arms cause incorrect toe-in and abnormal handling characteristics on turns.



Feathering: Feathering is a condition when the edge of each tread rib develops a slightly rounded edge on one side and a sharp edge on the other. By running your hand over the tire, you can usually feel the sharper edges before you'll be able to see them. The most common cause of feathering is incorrect toe-in setting, which can be cured by having it set correctly. Occasionally toe-in will be set correctly and this wear pattern still occurs.



Side Wear: When an inner or outer rib wears faster than the rest of the tire, the need for alignment is indicated. There is excessive camber in the front suspension, causing the wheel to lean too much to the inside or outside and putting too much load on one side of the tire. Misalignment could be due to sagging springs, worn ball joints, worn control arm bushings or worn kingpin bushings.



Cupping: Cups or scalloped dips appearing around the edge of the tread on one side or the other, almost always indicate worn (sometimes bent) suspension parts. Adjustment of wheel alignment alone will seldom cure the problem. Any worn component that connects the wheel assembly to the vehicle (ball joint, kingpins, wheel bearing, shock absorber, springs, bushings, etc.) can cause this condition. Occasionally, wheels that are out of balance will wear like this, but wheel imbalance usually shows up as bald spots between the outside edges and center of the tread.

Wheels/Rims/Spiders

A. Inspector shall inspect all nuts, bolts, studs, lugs and holes for damage. Visually inspect for broken, damaged, missing or loose fasteners. Rust around fasteners or on rim surface is sometimes an indication of cracked or loose mounting hardware.

B. Visually inspect rim for, cracks, welds or broken components. Visually inspect for any lock or slide ring that is broken, cracked, improperly seated, sprung or has mismatched rings.

APPENDIX H - MINIMUM INSPECTION CRITERIA FOR SCHOOL BUSES

WHEELCHAIR LIFT-EQUIPPED VEHICLES

A. Visually inspect and operate wheelchair lift to ensure proper function as designed. Inspect for any leaks that would hinder the operation of the lift.

B. Inspect all safety systems of the wheelchair lift (e.g., hand rails, ramp stops, etc.) and ensure that they are functioning as designed and in compliance with FMVSS 403 and 404.

C. Ensure that all pinch points are protected from seated passengers.

D. Visually inspect all wheelchair and occupant securement devices to ensure none are missing or broken and that straps are not frayed.

E. Inspect that all components for each wheel chair position are compatible in accordance with manufacturers' specifications.

F. Visually and physically inspect all anchorage points, tracking and fasteners for securement.

WINDOWS

A. Any glass or glazing that is broken through or missing (393.60);

B. Any glass not of approved type [393.60(a)];

C. Windshield has discoloration or other damage in that portion extending upward from the height of the topmost portion of the steering wheel, but not including a two-inch border at the top and a one-inch border at each side of the windshield or each panel thereof, except as follows:

1. Color or tint applied by the manufacturer for the reduction of glare;

2. Any crack not over ¼ inch long, if not intersected by any other crack;

3. Any damaged area, that can be covered by a disc ¾ inch in diameter, if not closer than three inches to any other such damaged area;

4. Driver's side area window(s) have chips, clouding, or cracks that obscure the driver's vision [393.60(c)]; or

D. No operable defrosting and defogging system to clear the driver's windshield (571.103).

APPENDIX I- MECHANIC'S PUPIL TRANSPORTATION VEHICLE INSPECTION REPORT

This report is included as an example and details minimum Inspection Points. Schools/contractors may include additional inspection points to this report. This form is to be kept in your school records and made available upon request. **This Checklist Indicates Compliance with Rule 92 Inspection Criteria**

District/System:			County District #:	
Vehicle Year:	Make of Chassis:	Make of Body:	Capacity:	VIN No:

	First Quarter Date:		Second Quarter Date:		Third Quarter Date:		Fourth Quarter Date:	
	Approved		Approved		Approved		Approved	
Brakes	Yes	No	Yes	No	Yes	No	Yes	No
Steering	Yes	No	Yes	No	Yes	No	Yes	No
Suspension Components	Yes	No	Yes	No	Yes	No	Yes	No
Bus Chassis/Frame	Yes	No	Yes	No	Yes	No	Yes	No
Exhaust System	Yes	No	Yes	No	Yes	No	Yes	No
Drive Shaft/Differential	Yes	No	Yes	No	Yes	No	Yes	No
Engine & Fuel System	Yes	No	Yes	No	Yes	No	Yes	No
Tires/Wheels/Hubs	Yes	No	Yes	No	Yes	No	Yes	No
Electrical System	Yes	No	Yes	No	Yes	No	Yes	No
Windshield Wipers	Yes	No	Yes	No	Yes	No	Yes	No
Bus Interior, Floors and Seats (buses only)	Yes	No	Yes	No	Yes	No	Yes	No
Doors, Steps, and Handrail	Yes	No	Yes	No	Yes	No	Yes	No
Emergency Door/Hatches (buses only)	Yes	No	Yes	No	Yes	No	Yes	No
Windows	Yes	No	Yes	No	Yes	No	Yes	No
Heaters, Defrosters	Yes	No	Yes	No	Yes	No	Yes	No
Mirrors and Bus Exterior	Yes	No	Yes	No	Yes	No	Yes	No
Lights, Lamps, Signals	Yes	No	Yes	No	Yes	No	Yes	No
Stop Signal Arm (buses only)	Yes	No	Yes	No	Yes	No	Yes	No
Emergency Equipment:								
Fire Extinguisher	Yes	No	Yes	No	Yes	No	Yes	No
First Aid/Body Fluid Kit	Yes	No	Yes	No	Yes	No	Yes	No
Emergency Reflection	Yes	No	Yes	No	Yes	No	Yes	No
Wheel Chair Lift Equipment *(if equipped)*	Yes	No	Yes	No	Yes	No	Yes	No

APPENDIX I - MECHANIC'S PUPIL TRANSPORTATION VEHICLE INSPECTION REPORT

First Quarter □Approved □Not Approved

DESCRIPTION OF ITEMS NOT APPROVED: _____

This pupil transportation vehicle was inspected by: (Signed)_____ Date:_____
School Appointed Mechanic

Date non-compliant items were corrected: _____

(Signed)_____
School Appointed Mechanic

Second Quarter □Approved □Not Approved

DESCRIPTION OF ITEMS NOT APPROVED: _____

This pupil transportation vehicle was inspected by: (Signed)_____ Date: _____
School Appointed Mechanic

Date non-compliant items were corrected: _____

(Signed)_____
School Appointed Mechanic

Third Quarter □Approved □Not Approved

DESCRIPTION OF ITEMS NOT APPROVED: _____

This pupil transportation vehicle was inspected by: (Signed)_____ Date:_____
School Appointed Mechanic

Date non-compliant items were corrected: _____

(Signed)_____
School Appointed Mechanic

Fourth Quarter □Approved □Not Approved

DESCRIPTION OF ITEMS NOT APPROVED: _____

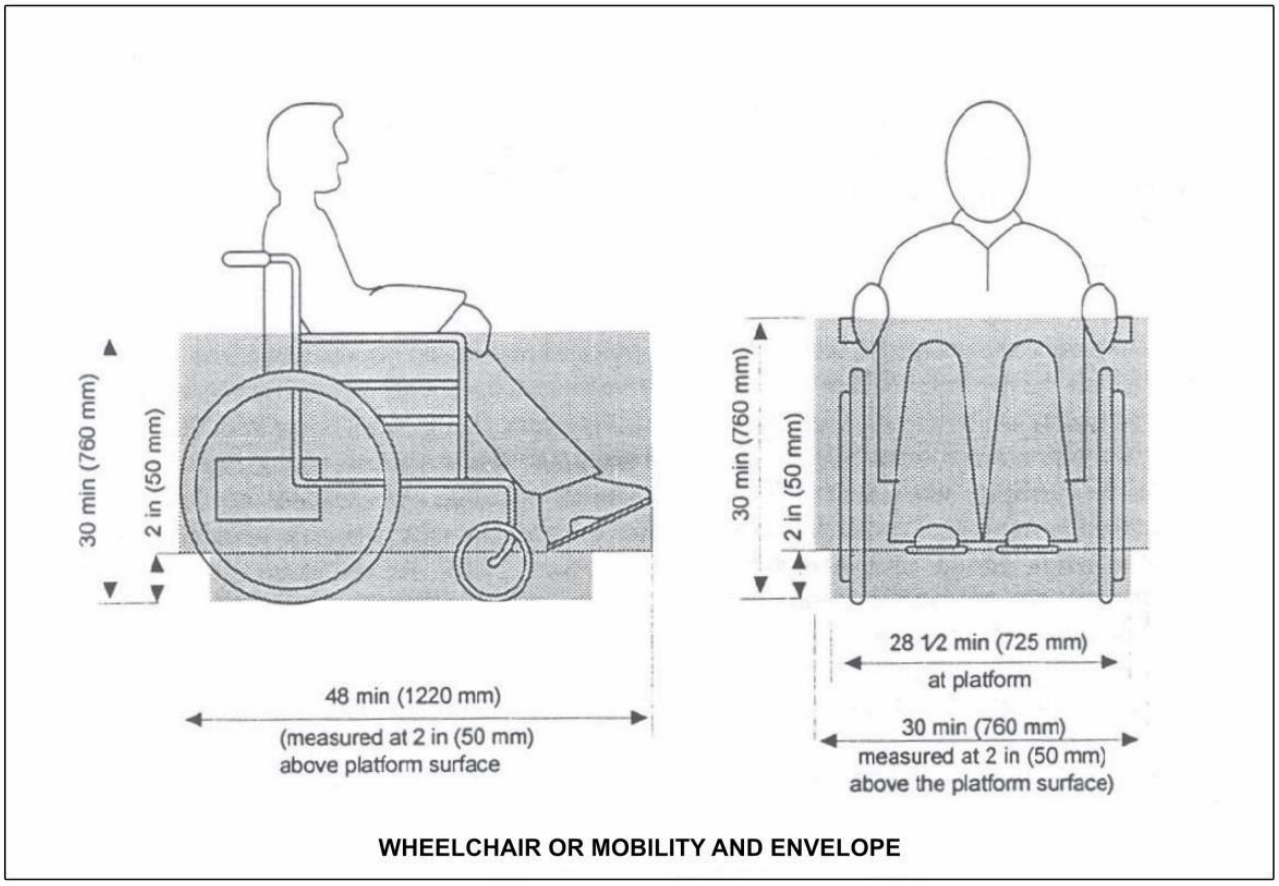
This pupil transportation vehicle was inspected by: (Signed)_____ Date:_____
School Appointed Mechanic

Date non-compliant items were corrected: _____

(Signed)_____
School Appointed Mechanic

APPENDIX J

Wheelchair or Mobility and Envelope



WHEELCHAIR OR MOBILITY AND ENVELOPE